Helping managers to assist employees' job crafting and well-being. An integrated (Top-down, Bottom-up) approach to job re-design

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Declaration

I hereby declare that this PhD thesis entitled "**Helping managers to assist employees' job crafting and well-being. An integrated (Top-down, Bottom-up) approach to job re-design**" is my own original work and has not been submitted before to any institution for assessment purposes.

I have acknowledged all sources used and have cited these in the reference section.

Abstract

Job crafting is a promising method of job re-design to improve the person-job fit (P-J fit) and well-being. From previous research, it emerges that line managers may be critical to facilitate bottom-up job re-design and employees' well-being. Nevertheless, no research has investigated the impact of top-down management development alongside bottom-up job re-design interventions or has purposefully integrated top-down and bottom-up elements in job re-design.

Top-down and bottom-up interventions were designed and implemented in two organisations. Repeated-measures data were collected three weeks before (Time1/baseline) and four months after (Time 2/follow-up) the interventions. In study 1, involving 276 call-centre agents, participants in the bottom-up intervention reported an increase in job satisfaction and social resources at T2 compared with a wait-list control group. Participants in the top-down intervention reported an increase, via direct and indirect effects, in job crafting, specific job characteristics, P-J fit, coping efficacy, meaning at work, well-being, and job satisfaction at T2 compared with a wait-list control group. No interaction effects were found between the interventions.

In study 2, involving 88 police officers, participants in the bottom-up intervention reported a decrease in structural resources, P-J fit, coping efficacy, and meaning at work at T2 compared with a wait-list control group. An interaction effect was found through which the (bottom-up and top-down) interventions enhanced well-being. Unplanned structural changes may have had an impact on the results of study 2, highlighting the challenges of intervention research in changing contexts.

The thesis provides several contributions, including evidence on the combined effects of two different interventions, which both had some beneficial effects. It also provides evidence of the mechanisms through which the interventions, job crafting, and job crafting-related outcomes positively impact well-being and job satisfaction.

Keywords: job re-design, real-world interventions, job crafting, job characteristics, person-job fit, meaning at work, coping efficacy, well-being, structural modelling.

Access Condition and Agreement

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Glossary

Job (or Work) Design: the configuration of the jobs that workers execute, referring to the content and organisation of the individual's tasks, relationships, responsibilities, and activities at work.

Job (or Work) Re-design: the purposeful re-organisation of the individual's tasks, relationships, responsibilities, and activities at work directed at improving the quality of jobs.

Top-Down Job Re-design: the job re-design initiatives initiated by organisational leaders or managers to enhance the workers' job quality and promote employee health and performance.

Bottom-Up Job Re-design: the job re-design initiatives initiated by employees to customise their own work according to their needs, values, preferences, and abilities.

Job Characteristics: aspects of the job such as workload, time pressure, job variety, job autonomy, or supervisory support that can influence a broad range of outcomes in employees' including health and performance.

Job Demands: aspects of the job that require sustained or high levels of physical, mental, or emotional effort such as emotional demands, workload, and time pressure. Job demands can be perceived as motivating (challenge demands) or strain-provoking (hindrance demands).

Job Resources: physical, psychological, social, and organisational aspects of the job (e.g., supervisory support, job autonomy, development opportunities, resilience) that can reduce job demands and their consequences (i.e., strain), encourage personal development, and support goal-achievement.

Job Crafting: job crafting refers to the self-initiated changes employees make in their job design for their own benefit. These changes can reflect modifications (a) in the levels of job resources and job demands (Tims & Bakker, 2010). (b) In the cognitive, relational, and task boundaries of

the jobs (Wrzesniewski & Dutton, 2001). (c) (As proposed in the present thesis), in the type and levels of resources (job, personal and social resources) used, in the organisation and levels of (hindrance and challenge) job demands, and to the cognitive boundaries of the jobs.

Person-Job Fit (P-J fit): the alignment between the job characteristics (i.e., job resources – job demands) and employee characteristics (i.e., abilities – needs).

Meaning (or meaningfulness) at work: the perception of work as a constructive and valued activity that positively impacts oneself and others and makes life more meaningful.

Coping Efficacy: the individual's ability to adapt, master, reduce, minimise, or tolerate adversity and aversive events and achieve goals despite hindrances.

Well-Being: the subjective state of content with one's emotional (affective-hedonic well-being) and life (or work) experience (cognitive and eudaimonic well-being – job satisfaction, a sense of purpose).

Helping managers to assist employees' job crafting and well-being. An integrated (Top-down,

Bottom-up) approach to job re-design

Chapter 1 Introduction

The purpose of the following chapter is to provide an overview of the relevance of the

thesis within the scholarly literature and to present an overview of its main contributions and

objectives in relation to critical gaps in the organisational behaviour literature.

1.1. Introduction and Background

Austerity measures, rapid demographic changes, unpredictable technological

advancements, a volatile, fragmented, and even hostile business environment put significant

pressures on businesses (Cawsey et al., 2016; Daft, 2015; Tarique & Schuler, 2010) and,

consequently, on employees (Demerouti et al., 2017; Sparks et al., 2011; see also Daft, 2015). In

the current turbulent business climate, safeguarding and enhancing workers' well-being is a top

priority in the business and political agenda to reduce individual, organisational, and societal

costs such as absenteeism, presenteeism, and ill-health (Baptiste, 2008; Seligman, 2012).

To this end, national policy frameworks (e.g. HSE Management Standards for Work-

Related Stress) emphasise the importance of good management of job-related factors such as

workload, job variety, job autonomy, and social support to promote health, well-being at work

and to reduce sickness absence (HSE, 2021). Scholarly evidence has shown that job

characteristics[1] are, indeed, significant predictors and determinants of health and well-being

(Daniels et al., 2017; HSE, 2021; Parker, 2014). According to this evidence, the most obvious

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[1] Job characteristics represent aspects of the job such as workload, time pressure, job variety, job autonomy, or supervisory support (i.e., job demands and job resources; further discussed in sections 2.1.1. and 2.2.2.) that can influence employees' sense of meaning at work, motivation, health and well-being (Parker, 2014).

strategy to promote well-being at work is to implement targeted changes to the job characteristics

(i.e., increasing job resources, reducing strain-inducing demands) to improve the quality of jobs

(Parker, 2014). Unfortunately, previous interventions directed at improving the quality of jobs in

organisations provided limited evidence of their effectiveness on employees' well-being (Daniels

et al., 2017; Osilla et al., 2012). Further research is needed to understand what interventions can

promote beneficial changes in job characteristics and help to reduce the rising incidence of work-

related illness in general and work-related stress and stress-related conditions in particular (i.e.,

anxiety, depression, heart disease; CIPD, 2018, 2019, 2020; HSE, 2017, 2020).

Work-related stress is a bio-psychosocial state of discomfort experienced by workers as a

result of a perceived inability to meet the psychosocial demands of the workplace (Mihaela et al.,

2016), which can negatively affect employees' health and performance (Harter et al., 2003; Warn

& Fairbrother, 2003). It might not be surprising that work-related stress is a leading factor

affecting workers' well-being (HSE, 2020) and that workplace demands, as well as poor

management support, emerged as the leading causes of stress and stress-related conditions for

workers (CIPD, 2018, 2020; HSE, 2017, 2020). As introduced earlier, organisations face

significant challenges nowadays. Factors like austerity measures, global competition for

customers and talent, increased costs and reduced resources force organisations to speed up

production while simultaneously abating costs and dealing with sudden technological

advancements and shifting customers' needs (Daft, 2015; Demerouti et al., 2017; Tarique &

Schuler, 2010). These challenges might fall back on employees in terms of heightened work

pressure, increased workload and emotional demands that threaten their well-being (Grant &

Parker, 2009; Molina & O'Shea, 2020; Parker, 2014). Effective interventions are necessary that

provide workers with the resources (e.g., emotional support, psychological empowerment) they

need to cope with the increasing demands, to avoid negative consequences such as burnout, to stay engaged at work, and to reduce sickness leave (Hafner et al., 2015; Hulshof et al. 2020; see also Schaufeli et al., 2009).

Theoretically, we have a substantial amount of evidence to design interventions that help employees better dealing with their demands and improve well-being (Grant et al., 2010). Previous research on the nature, antecedents, consequences, mechanisms, and boundaries of work design has provided "a clear and robust set of guidelines for practitioners to design work to promote employee performance and well-being" (Grant et al., 2010, p. 145). Work design refers to the content and organisation of the individual's tasks, relationships, responsibilities, and activities. It has been linked to individuals' factors such as health, sense of meaning, and performance (Parker, 2014). There is evidence that work can be re-designed to make jobs more motivating, purposeful, and meaningful (Grant & Parker, 2009; Parker, 2014). Nevertheless, there seems to exist a gap in our understanding of the elements that enhance or constrain the implementation of this knowledge. Indeed, as introduced above, despite the available guidelines mentioned by Grant et al. (2010) to design better jobs and to improve well-being, previous systematic reviews and meta-analyses have failed to provide substantial evidence that work re-design and well-being interventions have reliable effects on employees' well-being (Daniels et al., 2017; Richardson & Rothstein, 2008) and the evidence available on specific interventions to improve well-being is at maximum promising rather than proved (Daniels et al., 2017). More research is needed to determine what elements would have enhanced the design of previous interventions and what factors limited their effective implementation (Daniels et al., 2017). It is also crucial to provide practitioners with cost-effective, evidence-based methods based on robust

findings and tested through sound methodological approaches to enhance well-being in organisations (Daniels et al., 2017, 2019).

By integrating the available theoretical knowledge, this thesis aims to address critical gaps in our understanding of what might enhance (or otherwise constrain) the implementation and outcomes of specific job re-design interventions. Specifically, the thesis aims to assess the impact of management development in job re-design and compare complementary (i.e., bottom-up and top-down) interventions while testing the mechanisms through which the interventions elicit specific outcomes. By addressing these gaps in the literature, fully introduced in the following sections, I aim to design and implement a job re-design intervention that enhances employees' jobs and significantly improves employees' well-being and well-being related outcomes. Simultaneously, the thesis aims to provide evidence-based contributions about what type of job re-design interventions are most likely to work, how they work, and what elements can enhance the design, implementation, and outcomes of job re-design interventions.

1.2. Contributions and Objectives of the study

The present study will make the following contributions which are the main objectives of the research.

1) Top-down and bottom-up synergies in job re-design

The research will determine whether and to what extent top-down management development moderates the effects of a bottom-up job crafting intervention (i.e., training employees to improve their own work design) on employees' well-being. Management training in job design-related knowledge and social skills, in particular, will make the management development intervention. Previous research has adopted either a top-down (management-led) or bottom-up (workers-led) approach to job re-design (section 2.1.). However, evidence indicates

that integration between the two elements might be needed to ensure compatibility between job

re-design and those organisational processes and dynamics (i.e., power, style of management,

management commitment) that may affect the implementation and outcomes of job re-design

interventions (Berg et al., 2013; Clegg & Spencer, 2007; Daniels et al., 2017). This line of

enquiry will address a gap in the literature about the role (and impact) of managers and

management development in job re-design (Clegg & Spencer, 2007; Daniels et al., 2017; Zhang

& Parker, 2019) and contribute to identifying whether particular managerial behaviours,

attitudes, training, or practices foster or hinder beneficial job re-design (Berg et al., 2013;

Nielsen, 2013; Oldham & Fried, 2016; Thun & Bakker, 2018). It will also enhance our

knowledge of the influences of managers and workers in the context of job re-design (Clegg &

Spencer, 2007) and determine whether specific antecedents (i.e., management training in social

skills) impact various outcomes (employees' job crafting/well-being). Overall, the present study

answers a call for more research on the interpersonal and organisational factors that enable or

limit job re-design and job crafting (Berg et al., 2013) and is the first research to integrate

purposefully top-down and bottom-up job re-design elements into a single intervention.

2) The cost-effectiveness of job re-design interventions

While testing the synergies between top-down and bottom-up elements in job re-design,

and assessing the effects of an integrated (top-down and bottom-up) intervention, the thesis aims

to determine the unique contributions of top-down and bottom-up interventions (as further

described in the following contributions). The thesis aims to establish whether individual top-

down and bottom-up interventions elicit similar effects on employees' well-being (and well-

being related variables). Simultaneously, it aims to assess whether integration between top-down

and bottom-up job re-design elements augments the main top-down and bottom-up interventions'

impact. As introduced earlier, it is critical to identify what type of interventions are most likely to work to provide evidence-based recommendations on the effectiveness of specific (i.e., top-down - bottom-up) job re-design interventions, so that employers can make informed decisions on which interventions to employ relative to the benefits (in terms of well-being) and costs. For example, if a top-down intervention was as effective in improving well-being as a bottom-up intervention, it would be more cost-effective to implement the top-down intervention because it involves training fewer individuals (line managers).

3) A new conceptualisation of job crafting

Using the cumulative knowledge that emerged from previous job crafting interventions (and theory), in this thesis, I ideate an operational definition of job crafting that integrates the different conceptualisations of job crafting that can be found in the literature. Most research has operationalised job crafting using either Tims and Bakker's (2010) or Wrzesniewski and Dutton's (2001) conceptualisations (Tims & Knight, 2019)[2]. However, as discussed in section 2.2, there are sound reasons to believe that integrating the two models would provide a broader conceptualisation of job crafting and foster a broader range of positive outcomes in job crafting interventions in different working settings.

4) A comprehensive model for job crafting

The research will also provide and test a model (Figure 3; section 2.2.3.) of the dynamics through which this new conceptualisation of job crafting enhances well-being and will assess the

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[2] Recently, different conceptualisations have emerged, such as the approach-avoidance model of job crafting (Bruning & Campion, 2018; Zhang & Parker, 2019). However, these new conceptualisations tend to overlap, are inconsistent with each other or need to be clarified further (Hu et al. 2020; Kim & Beehr, 2019). Moreover, these new conceptualisations introduce new definitions of job crafting that might not be easily connected to the definitions found in the two-mainstream literatures (i.e., Tims and Bakker, 2010; Wrzesniewski & Dutton, 2001; see section 2.2.2.).

impact of a job crafting intervention, based on the new operationalisation, on employees' well-being. Although scholars theorise that job crafting determines positive outcomes such as well-being or sense of meaning at work by enhancing the job characteristics and improving the fit between employees needs' and abilities and their jobs (i.e., P-J fit; Berg et al., 2013; Geldenhuys et al., 2020; Gordon et al., 2018; Rudolph et al., 2017), to date, no research has tested a comprehensive model of the outcomes of job crafting in relation to well-being. As discussed in section 2.2.2.1., previous research has provided only partial evidence of the outcomes of job crafting and job-crafting related constructs such as person-job fit and meaning at work (Kooij et al., 2017; Tims et al., 2016). Person-job fit (P-J fit) refers to the alignment between job characteristics (i.e., job resources – job demands) and employee characteristics (i.e., abilities – needs; Chen et al., 2014). Meaning (or meaningfulness)[3] at work refers to the perception of work as a constructive and valued activity that has a positive impact on others (and oneself) and which makes life more meaningful (Wrzesniewski et al., 2013; see also section 3.2.3.).

Similarly, previous job crafting interventions did not pay attention to the mechanisms through which the intervention determined specific outcomes in employees (Dubbelt et al. 2019) or only focused on the effects of the intervention on the hypothesised outcomes through specific mediators (e.g., job crafting behaviours; Demerouti et al., 2020; Dubbelt et al., 2019). Overall, no research has tested a comprehensive model of the outcomes of job crafting as theorised in the literature (i.e., determine whether job crafting enhances the job characteristics, and in turn, P-J

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[3] In the present research meaning at work and meaningfulness at work are used interchangeably. Using both terms is necessary to make meaningful comparisons with previous research using either one or the other term - e.g., Tims et al., 2016, use the work and meaning inventory (WAMI; Steger et al., 2012) to test weekly meaningfulness at work. Meaningful work is defined in different ways (Geldenhuys et al., 2020); nevertheless, what is important is that meaning (or meaningfulness) determines (and is a facet of, i.e., see Seligman, 2013) individuals' well-being (Geldenhuys et al., 2020).

fit, meaningfulness, etc.) as well as of the dynamics through which job crafting (and precisely job crafting interventions) enhance well-being. A better knowledge of the dynamics through which job re-design interventions have their effect is crucial to design more effective interventions. For instance, if job resources emerge as critical mediators of positive outcomes in job crafting interventions, researchers, practitioners, and organisations can compare job crafting with other job resources interventions to find the optimal approach to improving job resources. The present research, using structural equation modelling with observed variables, sheds light on the outcomes of job crafting and its mediators in the relationship between job crafting and well-being in the context of a job re-design intervention.

5) An evidence-based management development intervention

The research will assess the impact of management training in social skills and job design-related knowledge in an intervention directed at workers' well-being, and test whether the latter has a positive effect on the employees' ability to modify their jobs proactively and, in turn, experience positive psychosocial outcomes. While the type and quality of management have emerged as key factors for employees' well-being (CIPD, 2018, 2019, 2020; Daniels et al., 2018), there is limited evidence on what type of management development can successfully be implemented to enhance the quality of employees' jobs and their well-being. Simultaneously, research is needed to assess the impact of management development in social and emotional competencies on outcomes such as employees' well-being (Riggio & Lee, 2007). Overall, there is a scarcity of controlled leadership intervention studies directed at employees' well-being (Elo et al., 2014). This thesis contributes to the literature by evaluating an (evidence-based) management development intervention fully designed by the author. Management refers to the integrated activity of securing organisational performance and sustaining employees' work

engagement through the use of hard skills such as budget allocation and soft skills like counselling (see Mullins 2008).

6) Methodological Advancements

Methodologically, this thesis provides several contributions. The interventions stand on evidence-based program theories (Shadish et al., 2002) and have been designed and developed by integrating the existing literature and adding relevant theoretical elements to standardise a set of procedures that can facilitate replication and thus enable valid meta-analyses (Chapter 3). Previous job crafting interventions have limitations that limit the generalisability and robustness of the findings. For instance, most interventions had short follow-ups (in some cases as short as one or two weeks), relatively small samples (Kooij et al., 2017; Kuijpers et al., 2020; van den Heuvel et al., 2015; van Wingerden, Bakker, et al., 2017a; van Wingerden et al., 2016; see also Oprea et al., 2019) and in some cases (e.g., Sakuraya et al., 2016) did not have a control group. These characteristics represent threats to the validity and reliability of a study (Cook et al., 1990; see section 3.1.4.). Moreover, all previous interventions except three[4] (i.e., Demerouti et al., 2017; Sakuraya et al., 2016, 2020) have been implemented in the Netherlands (e.g., Dubbelt et al., 2019; Hulshof et al., 2020; Kooij et al., 2017; Kuijpers et al., 2020; van den Heuvel et al., 2015; Table 1 in section 2.2.2.1.), making further evidence needed to test the validity of job crafting interventions in different countries/contexts. The present research represents the first job crafting intervention evaluated in the Anglo-American context (note, other interventions may have been implemented, but have not been assessed or published to date). Finally, both the top-

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[4] Note, two interventions involving some bottom-up elements (i.e., Costantini & Sartori, 2018; Holman & Axtell, 2016) were implemented in the UK and Italy. However, these were not specifically job crafting interventions (see Table 1 in section 2.2.2.1.).

down and bottom-up interventions have been implemented in two different studies involving

different professions and organisations, allowing for inferential evidence about the differential

impact of the interventions depending on context and magnifying the research's external validity.

Overall, compared to previous research, the present study employs a larger sample (particularly

in Study 1), has longer follow-ups, and has taken specific steps to maximise validity and

reliability (Chapter 3).

7) The impact of meaning, P-J fit, and coping efficacy

The study's findings will determine the impact of meaning at work as an outcome and

mediator of job crafting (and coping efficacy) as well as an antecedent of well-being and job

satisfaction. While the concept of meaningful work, referred to the degree of significance

employees think their work possesses (Berg et al., 2013), was pivotal in the early

conceptualisation of job crafting (Wrzesniewski et al., 2013; Wrzesniewski & Dutton, 2001),

research to date has mostly ignored to investigate its impact on job re-design (Tims et., 2016;

Wrzesniewski et al., 2013). Further evidence is needed to provide insights into the antecedents

and outcomes of meaningful work (Bailey et al., 2019). At the same time, the present study

investigates the impact of other psychological constructs relevant to the job crafting literature,

such as P-J fit and coping efficacy (Chen et al., 2014; Tims et al. 2016; Wrzesniewski et al.,

2013) and their mediating role in the relationship between a job re-design intervention, job

crafting and well-being. As highlighted by Kooij et al. (2017), it is crucial to understand not only

how employees can enhance psychosocial outcomes such as P-J fit (or coping efficacy)

themselves, but also to implement an intervention-based research design that "allows for an

appropriate assessment of the effectiveness of these efforts" (p. 971).

8) A comprehensive measurement of well-being

This thesis will assess the impact of job re-design on different dimensions of well-being. Namely, the present research aims to assess whether the job re-design interventions elicit positive effects on affective, eudaemonic, and hedonic well-being (i.e., affective well-being, meaning, and job satisfaction). Most job crafting research has operationalised well-being as work engagement, burnout, exhaustion, or strain (Nielsen & Abildgaard, 2012; Gordon et al., 2018; Tims et al., 2013). Nevertheless, well-being is a multi-facet, multi-level construct/state made of different dimensions (Diener et al., 2017; Dodge et al., 2012; see section 2.5). The present research contributes to the literature by assessing the impact of job re-design interventions on different well-being dimensions, including affective, eudaemonic, and hedonic well-being.

9) Real-world interventions

Finally, in a context of a dearth of interventions directed at improving the workers' job characteristics which, in turn, improve psychosocial outcomes in participants (Biggs et al., 2014), the present research offers evidence of two job re-design interventions designed to elicit beneficial psychosocial outcomes in employees in different work contexts. Simultaneously, the thesis contributes to the literature on real-world interventions (Pawson, 2013) by implementing two interventions in contexts characterised by significant change.

In the following sections, I will further develop the arguments introduced above and set specific research questions and hypotheses.

1.3. Structure of the thesis

The thesis develops around the following chapters: Literature review (Chapter 2), Methodology (Chapter 3), Findings (Chapter 4), Discussion (Chapter 5), and Conclusions (Chapter 6). Each chapter provides an initial introduction and summary of the sections and material covered in the chapter. In summary, the thesis is structured as follows:

Chapter 2 provides an overview of the job design literature concerning the reciprocal influences of top-down and bottom-up elements in job re-design. Previous research's conceptual and methodological limitations are discussed along with the distinct lines of inquiries pursued in the thesis to address the gaps in the literature, answer the research questions, and test the hypotheses presented in the chapter.

Chapter 3 introduces the thesis's methodological approach and the methods used in Study 1 (involving call-centre agents and supervisors) and Study 2 (involving Police officers and leaders), both of which involved a quasi-experimental design aimed to test the effects of specific job re-design interventions. The chapter starts with a discussion on critical methodologies and a justification for adopting a distinct philosophical position. It follows a discussion on validity and reliability in quasi-experimental research to highlight how the present study aimed to follow sound methods and provide robust findings. The method pursued to test the hypotheses in Study 1 is subsequently presented, including research context, participants, procedures, measures, and analyses. A thorough description of the design and structure of the bottom-up and top-down interventions implemented in both studies is also provided in the context of Study 1. The chapter ends with a description of the method followed in Study 2. This section includes an overview of the unpredictable disruptions experienced in Study 2 and how, consequently, the hypotheses could only be partially tested in the latter.

Chapter 4 highlights the analyses and findings of the thesis. The chapter starts with a more in-depth description of the analytical approach pursued in the main study (Study 1), including modelling principles for Structural Equation Modelling (SEM) with observed variables and a discussion on the analyses' estimators. Subsequently, the preliminary analyses (i.e., Confirmatory Factor Analyses [CFA], Chi-square difference tests) run to evaluate the measures' psychometric qualities and test the measurement model are presented. The section includes a discussion on correlated errors and fit indices in the context of SEM. It follows a description of the screening process (for path analysis), descriptive statistics, and hypothesis testing. Subsequently, Study 2's analyses and findings are presented, including preliminary analyses, assumptions check (for hierarchical multiple regression), results, and additional analyses (paired-samples t-tests).

In Chapter 5, the thesis' findings are discussed. The chapter's focus is on the principal Study 1, where, contrarily to Study 2, the thesis' aims could be fully met, and the hypotheses comprehensively tested according to the arguments presented in Chapter 2 and introduced in section 1.2. above. Study's 1 findings are discussed in line with the distinct lines of inquiries pursued in the thesis. These include discussing the effects of a job crafting intervention in contact centres, the effects of a top-down intervention, the support found for the hypothesised structural model, and the missed findings (including the lack of an interaction effect between the interventions). A new concept (dyadic Leader-Member Role Adjustment, LMRA) is introduced to explain Study's 1 findings (and previous research). It follows a discussion on the effects of a job crafting intervention in the context of Police (Study 2). The chapter finally describes the implications for research and theory, the thesis's limitations, and its practical implications.

Chapter 6 completes the thesis with the concluding remarks.

Chapter 2 Literature Review

2. Literature Review

This chapter provides an overview of the job design literature concerning the top-down (manager-led) and bottom-up (employee-led) influences in job re-design and introduces the conceptual and methodological gaps in the literature addressed by the present study.

Specifically, section 2.1. introduces the dynamic nature of job re-design, involving both top-down and bottom-up influences. In sections 2.1.1 and 2.1.2., the reciprocal influence of top-down and bottom-up elements in the re-design of jobs is discussed, emphasising how top-down influences can either facilitate or hinder the bottom-up job re-design efforts and vice-versa. Section 2.1.3. provides further theoretical support to the arguments introduced in the previous sections suggesting that top-down and bottom-up elements should be integrated (and investigated simultaneously) in the context of job re-design and leads to the main research questions of the thesis (section 2.1.4.). Subsequently, there follows a discussion on the specific types of bottom-up and top-down elements chosen to inform the design of the job re-design interventions implemented in the present research. Sections 2.2. to 2.2.4. introduce the concept of job crafting along with the limitations and gaps in the previous job crafting literature and the distinct lines of inquiry pursued in the present research to address these gaps. Conceptual (e.g., limitations in the previous operationalisations of job crafting) and methodological (e.g., lack of full empirical support to the proposed mechanisms through which job crafting works; partial support for the effectiveness of previous interventions) limitations of previous research are discussed and addressed through specific research questions and hypotheses. A new operationalisation of job crafting is introduced with a model to test the mechanisms through which job crafting and a job crafting intervention elicit beneficial outcomes. In sections 2.3. and 2.4., a rationale for including

management development (and a particular type of management development) to facilitate job

crafting and the job crafting intervention - and enhance employees' well-being - is provided.

Three further hypotheses are set in section 2.4. aimed at testing the independent impact of the

top-down intervention, the mechanisms through which the latter elicits the expected outcomes,

and (the central hypothesis) its moderating role in augmenting the bottom-up intervention's

effects. Finally, a discussion on the concept of well-being concludes the chapter. Specific

elements are also introduced in each section (e.g., a definition of job resources and job demands).

Overall, six hypotheses are developed to address the research questions of the thesis and meet its

objectives.

2.1. An Integrated (Top-Down, Bottom-Up) approach to job re-design

Work design approaches are rooted in assumptions about where the authority to re-design

jobs resides (Hornung et al., 2010). Job re-design can have top-down or bottom-up elements

(Grant & Parker, 2009), and in some cases, be driven by unions and governments (Daniels et al.,

2018).

Historically, job design approaches such as the scientific management (Taylor, 1911), the

Motivation-Hygiene Theory (Herzberg, 1966), or the job characteristic model (Hackman &

Oldham, 1976, 1980) assumed that the managers have the authority to modify or re-design jobs

in a top-down fashion (Hornung et al., 2010; Oldham & Fried, 2016). More recently, bottom-up

practices such as job crafting (Wrzesniewski & Dutton, 2001) have emphasized the role and

power of workers in customizing their own work to fit their preferences, values, abilities, needs,

and skills (Bakker et al., 2012; Nielsen & Abildgaard, 2012). Previous job re-design

interventions have followed either a top-down or bottom-up approach (Berg et al., 2013; Gordon et al., 2018)[5].

However, considering that authority in organisations is multidirectional (Hornung et al., 2010), and given the reciprocal, dynamic, and circular (instead that unidirectional) nature of job design (Clegg & Spencer, 2007; Grant & Parker, 2009), job re-design interventions should consider the mutual influence of top-down and bottom-up elements. In particular, job re-design interventions should consider the mutual influence of employees and their line managers (as those most affected by the re-design of jobs, Daniels et al., 2017) for an optimal implementation (Tims et al., 2013). Indeed, both employees and management influence the change process involved in work re-design (Clegg & Spencer, 2007; Gordon et al., 2018) and interdependently determine the antecedents (e.g., the conditions which facilitate or hinder effective job re-design) and outcomes of job re-design (Clegg & Spencer, 2007).

2.1.1. Top-down influences on bottom-up job re-design efforts

A growing amount of evidence suggests that managers play a crucial role in facilitating or hindering bottom-up job re-design (Fong et al., 2020; Kim & Beehr, 2019; Thun & Bakker, 2018). Managerial control, for instance, might constrain proactive behaviours in employees (Grant & Parker, 2009; McClelland et al., 2014), thus possibly directly affecting the effectiveness of a bottom-up job-design intervention such as job crafting (Slemp et al., 2015). Job re-design, indeed, involves some redistribution of power (Daniels et al., 2017) and might

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[5] With inconsistent effects across studies, a limited amount of research involved participative methods where workgroups aimed to develop better quality jobs (Daniels et al., 2017; Holman & Axtel, 2016). Participative interventions provide limited evidence of their effectiveness (including adverse outcomes in some circumstances) and might be subject to factors associated with group dynamics, such as the uneven distribution of power in work teams (Daniels et al., 2017).

impact the beliefs about leadership and control (Parker, 2014). Line managers may perceive the

self-initiated proactive initiatives as a threat to their status and limit or restrict the bottom-up

crafting efforts (Oldham & Fried, 2016). Managers can demand a prescribed way to perform the

job that leaves little space for employees to modify their tasks (or relationships; Berg et al., 2013;

Kim & Beehr, 2019). Moreover, managers can influence the workers' perceived levels of job

resources and demands (Bakker et al., 2012; Nielsen et al., 2008) and influence the job re-design

efforts (see below; Slemp et al., 2015; Tims et al., 2013) as well as directly impact well-being

(for instance by setting unrealistic deadlines, reducing job control, or through their managerial

style; Bakker et al., 2005, 2014; HSE, 2020; CIPD, 2017).

Job demands are aspects of the job that require sustained or high levels of physical,

mental, or emotional effort (i.e., emotional demands, workload, time pressure) and are

consequently associated with certain physiological and psychological costs (Schaufeli & Bakker,

2004; Parker, 2014). Job resources, conversely, represent physical, psychological, social, and

organisational aspects of the job (e.g., supervisory support, autonomy, resilience/coping) that can

reduce job demands and their consequences, encourage personal development, and support goal-

achievement (Parker, 2014; Schaufeli et al., 2009). By increasing or decreasing resources and

demands, managers might influence the antecedents, implementation, and outcomes of job re-

design.

For instance, Slemp et al. (2015) found that autonomy support (i.e., the extent to which

managers support employees' autonomy) is a significant predictor of job crafting and, in turn, of

well-being (although supplemental analyses suggested a synergistic relationship in which

combination of autonomy support and job crafting related to highest levels of well-being).

Overall, Slemp et al. (2015) indicate that by providing more or less autonomy to workers,

managers can facilitate or hinder job crafting and well-being. The cross-sectional nature of the study does not allow to make causal inferences.

In line with their findings, Kim and Beehr (2019) recently showed that empowering leadership (i.e., a leadership style through which leaders provide autonomy and power to subordinates) predicted job crafting and, in turn, well-being. According to the authors, empowering leadership represents an environmental resource that can facilitate bottom-up job crafting to be more resourceful due to the greater autonomy employees receive from their managers (Kim & Beehr, 2019). Thun and Bakker (2018) also found that empowering leadership predicted specific job crafting behaviours (i.e., increasing structural and social resources and challenge demands). According to the authors, a leadership style that favours job autonomy (i.e., empowering leadership) represents an important antecedent of job crafting. An experimental, quasi-experimental (e.g., the present research) or longitudinal design is needed to support this conclusion and allow more robust causal inferences (Kim & Beehr, 2019; Thun & Bakker, 2018). Nevertheless, also Van Wingerden and colleagues (2017a, b), in studies with a quasi-experimental design, indicate that job crafting can be facilitated or inhibited by managers and the levels of resources they provide to employees. The authors suggest that the feedback employees receive on their job crafting actions (and whether resources such as training opportunities are available/accessible) can either facilitate or constrain job crafting behaviours (although they did not test this assumption).

Tims et al.'s (2013) and Gordon et al.'s (2018) findings indicate that line managers might play a vital role in determining the amount of demands employees have as well as their motivation and intentions to reduce these (i.e., employees might refrain from reducing demands if they perceive their line manager would not accept the changes). Indeed, in these studies job

crafting did not lead to a reduction in certain demands (Tims et al., 2013) and reducing demands did not improve well-being (Gordon et al., 2018; Tims et al., 2013). The authors argued that whether or not managers accept and support a reduction in demands can affect the extent to which employees craft (and are willing to craft) the latter (Gordon et al., 2018; Tims et al., 2013). Recently, Fong et al. (2020) found that not only avoidant job crafting behaviours (i.e., reducing job demands) to be noticed by supervisors (in contrast to previous literature assuming that job crafting is mainly unnoticed by supervisors; Fong et al., 2020). Avoidant job crafting also led to adverse reactions from line-managers. Specifically, Fong et al. (2020) found that supervisors did notice employees who engaged in avoidant job crafting. Avoidant job crafting, in turn, related to a reduction in supervisory support (i.e., a worsening in job characteristics). According to the authors, supervisors signal employees that they do not appreciate specific job crafting behaviours such as avoidant job crafting (Fong et al., 2020). As a result, even though employees could proactively reduce their job demands to safeguard their well-being (Fong et al., 2020), their willingness to craft these (and their job in general) might depend on how line managers perceive and react to job crafting.

Fong et al.'s (2020) findings support Tims et al.'s (2013) and Gordon et al.'s (2018) conclusions and highlight that through their attitudes and behaviours, indeed, managers might influence bottom-up job re-design (Daniels et al., 2017) and the employees' motivation to re-design jobs. Solberg and Wong (2016) found that employees are more likely to craft their jobs when a manager's need for structure (i.e., one's preference for unambiguous/predictable environments) is low. Their findings suggest (in line with Slemp et al., 2015 and Berg et al., 2013) that managers who engage in controlling and monitoring behaviours may undermine bottom-up job re-design methods such as job crafting. Conversely, as seen above, autonomy-

supportive managers can facilitate a working context favourable for job crafting (Kim & Behhr, 2019; Slemp et al., 2015; Thun & Bakker, 2018). Further highlighting the influence of managers' attitudes on employees' job re-design, Tafvelin and colleagues (2018) found, in a quasi-experimental study, that the level of supervisory support (the extent to which supervisors give support and help) was positively associated with employees' perceived climate for innovation (i.e., the extent to which the organisation support innovative and proactive behaviours).

It emerges (as further discussed below) that through their attitudes and behaviours, managers can facilitate or constrain bottom-up job re-design. As introduced above, previous empirical and qualitative research has highlighted distinct potential ways through which managers can influence bottom-up job re-design (although previously cited research was largely cross-sectional with no research investigating in intervention research settings the causal influence of managers in bottom-up job re-design. Thus, the described processes reflect potential processes to be investigated further through experimental research). Primarily, managers can nurture a work climate that favours bottom-up job re-design by engaging in supporting and positive behaviours and leadership styles (Kim & Beehr, 2019, Thun & Bakker, 2018; see also Wu & Parker, 2017) as opposed to controlling and monitoring leadership styles (Berg et al., 2013; Solberg & Wong, 2016; Van Wingerden et al., 2017 b; Wang et al., 2020). In this sense, top-down influences can determine a beneficial (versus adverse) process whereby workers have (not) the confidence (e.g., higher role-breadth self-efficacy, autonomous motivation, psychological empowerment) and space to engage in proactive behaviours directed at improving their work design (i.e., Kim & Beehr, 2019; Wu & Parker, 2017). Secondarily, managers can influence the type and level of job characteristics of employees' jobs and the extent to which employees can re-design their jobs (see earlier points). In this sense, top-down influences can

determine a change (increased/decreased job resources and demands) in employees' jobs that can either facilitate or constrain bottom-up job re-design (Fong et al., 2020; Slemp et., 2015; Solberg & Wong, 2016; Wang et al., 2020; see also Esteves & Lopez, 2017). Overall, as indicated by Slemp et al. (2015), while bottom-up job re-design is promising because it highlights the employees' agency in improving their work experience, this agency is either facilitated or hindered by contextual forces (e.g., top-down influences). As the authors underline, in support of this thesis, organisations would benefit from targeting both employees and managers in well-being and job re-design interventions (Slemp et al., 2015). Indeed, underlying the dynamic and reciprocal nature of job design, bottom-up influences can, in turn, influence top-down job re-design.

2.1.2. Bottom-up influences on top-down job re-design efforts

Not only top-down, but also bottom-up influences can facilitate or hinder top-down job re-design efforts. Well-designed jobs might not lead to positive outcomes if the abilities, skills, and preferences of employees are not considered (Hornung et al., 2010). Indeed, individual differences such as personality might moderate work design effects (Parker, 2014) and affect the employees' preferences for certain work characteristics (Oldham & Fried, 2016). At the same time, involving workers in job re-design is necessary to ensure that the top-down re-design efforts address issues relevant to them (Daniels et al., 2017). Employees need to accept changes in their job design initiated by managers for these to be implemented in their jobs (Clegg & Spencer, 2007). Moreover, employees need the abilities and attitudes necessary to realise improvements on the opportunities or resources offered by the management (Grant & Parker, 2009), and thus not to nullify the top-down job re-design initiatives. As indicated by Daniels, Glover, et al. (2018), a top-down job re-design effort such as enhancing job control or social

support might not lead to enhanced well-being if workers are not trained in using those resources for specific purposes (e.g., to improve meaningfulness and well-being). Furthermore, changes in the work design which are initiated by managers without involving employees, might not lead to an improved person-job fit (i.e., resources and demands are aligned with employees' needs and abilities), and consequent meaningful work (Tims et al., 2016); thus, having a limited effect on employees' well-being. Simultaneously, involving employees in job re-design initiatives can be crucial to facilitate greater employee commitment to implement the changes initiated from the top-down (Holman & Axtel, 2016).

Holman and Axtel (2016), for example, found that a participative job re-design intervention in which workgroups identified beneficial changes in the job characteristics of call centre agents improved specific job characteristics (perceived job control and feedback) in the experimental group. Enhanced job characteristics, in turn, positively related to higher well-being, psychological contract fulfilment, and (partially) performance. The study has some limitations (e.g., a small sample, a relatively short follow-up, an active control group does not allow to rule out threats to internal validity such as compensation rivalry; Cook et al., 1990). Nevertheless, Holman and Axtel's (2016) findings support the argument that involving employees in job re-design initiatives is critical to enact positive changes in those job characteristics that are relevant to them, to encourage employees' commitment to job re-design initiatives, and to achieve positive outcomes. Overall (although no research has investigated, in experimental or quasi-experimental settings, the causal influence of bottom-up job crafting on top-down job re-design), previous research suggests distinct potential ways through which bottom-up influences can impact top-down's job re-design efforts and effectiveness. Primarily, unless workers are allowed to shape their own jobs as part of the top-down job re-design, they could perceive the top-down

initiatives as not relevant for them (i.e., not enhancing or worsening the P-J fit) or even harmful.

For example, employees may perceive increased job resources (e.g., social support) negatively if

these are imposed on them, or they did not want-need them in the first place (see Van Veldhoven

et al., 2020). Secondarily, following the previous point, they may not be committed to

implementing the job re-design initiatives initiated from the top-down (i.e., make better use of

the increased social resources) as they do not perceive these as relevant to them or perceive them

as harmful. Finally, they may not know how to capitalise on the opportunities offered from the

top-down (see above). In brief, involving workers in job re-design initiatives by allowing

workers to craft some aspects of the re-designed jobs appears critical to ensure the top-down re-

design efforts do not vanish (or turn harmful). - (as also emerging from Nielsen's (2013)

conceptual paper emphasizing the active influence of workers (and line managers) in shaping

interventions' implementation and outcomes through their reactions towards the intervention's

scope and effects (i.e., alterations in the job design).

2.1.3. Integration of top-down and bottom-up elements in job re-design

From the discussion above, it emerges that top-down and bottom-up elements might need

to be integrated into job re-design interventions to ensure that one does not hinder or inhibit (but

that conversely augments) the effects of the other.

In further support of these statements, theoretical reasons indicate that some studies that

only had a top-down (i.e., Biggs et al., 2014; Elo et al., 2014) or bottom-up (i.e., Gordon et al.,

2018; van den Heuvel et al., 2015) focus and that showed limited or partial results on their

effectiveness would have benefited from integrating the two elements. For instance, the findings

of Elo et al. (2014) and Biggs et al. (2014) indicate that top-down job re-design interventions

(i.e., leadership development) can be effective to elicit specific positive outcomes such as job

satisfaction, work engagement, and flow of information. Nevertheless, Elo et al. (2014) and Biggs et al. (2014) failed to support the beneficial effect of the top-down interventions on other outcomes such as turnover intention, supervisory support, well-being or strain. These last elements could have been improved through additional bottom-up job crafting (i.e., Bakker et al., 2012; Demerouti et al., 2017; Gordon et al., 2018; Slemp & Vella-Brodrick, 2014). Indeed, previous job crafting interventions (although, overall, provided only partial evidence of their effectiveness; see Daniels et al., 2017, and section 2.2.2.1. below) have proved effective to enhance positive affect (Demerouti et al., 2017), psychological distress (Sakuraya et al., 2016), and well-being (Gordon et al., 2018).

Moreover, van den Heuvel et al.'s (2015) findings indicate that job crafting can help employees make better use of the resources enhanced through the top-down efforts and might thus augment the latter. In their study, a job crafting intervention improved the supervisory relationships, and weekly job crafting (as seeking resources) related to an enhanced weekly employee-supervisor relationship. Their findings indicate that job crafting can potentially assist employees in making better use of the resources enhanced from the top-down (i.e., social support) and might thus have boosted the top-down interventions in Elo et al. (2014) and Biggs et al. (2014). In support of this conclusion, specific job crafting interventions have proved effective to enhance the employees' ability to use (seek or increase) resources (i.e., Dubbelt et al., 2019; Gordon et al., 2018). Increasing resources such as support from supervisors, in turn, led to higher work engagement, task performance, career satisfaction (Dubbelt et al., 2019) and well-being (Gordon et al., 2018). These studies suggest that job crafting interventions can be effective to assist employees to seek, use or increase the resources enhanced from the top-down

to achieve positive outcomes, and could, therefore, augment the effects of tailored top-down interventions.

Conversely, training managers to ensure they sustain and do not undermine bottom-up job re-design would have facilitated the job crafting interventions in Gordon et al. (2018, see also Tafvelin et al., 2018, section 2.1. above, and chapter 2.4. below) as well as in several other interventions that found only limited support for their effectiveness (e.g., Hulshof et al., 2020; Kuijpers et al., 2020; Sakuraya et al., 2020; van Wingerden, Bakker, et al., 2017a). Overall, theoretical arguments highlight the implicitly critical value of integrating top-down and bottom-up elements in job re-design interventions. As introduced earlier (sections 2.1.1., 2.1.2.), there are distinct potential ways through which top-down and bottom-up elements can influence each other in the context of purposeful job re-design, suggesting the need to integrate the two elements (in line also with Nielsen's (2013) and Clegg & Spencer's (2007) conceptual papers). Managers can favour (hinder) a working context that is favourable (not) for bottom-up job re-design through an empowering and supporting (versus controlling) leadership style. Managers can also enhance the job characteristics of employees (e.g., increase job autonomy), making it easier for employees to proactively re-design their job's boundaries. On the other hand, employees can perceive the top-down job re-design efforts more positively (versus negatively) if they are involved (not) in the job re-design process as well as maximise (not) on the opportunities or resources offered from the top-down, thus boosting (versus hindering) the top-down job re-design efforts. According to the discussion so far, job re-design interventions should acknowledge (and address) the joint influence of managers and employees' own job crafting in determining the success or failure of job re-design (Figure 1).

Figure 1

The interplay of top-down and bottom-up influences in job re-design
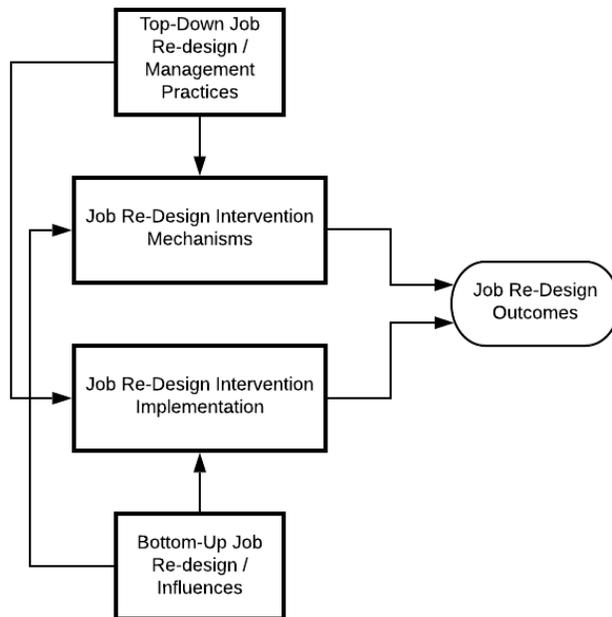
Nevertheless, previous interventions did not directly address the interplay of top-down and bottom-up influences and had either a top-down or bottom-up focus solely. Testing the synergies between top-down and bottom-up elements and investigating the processes through which they work is a priority for the design of job re-design interventions that provide clear information about the contextual factors enabling successful job re-design. This is particularly critical because evidence indicates that, in line with the arguments discussed earlier, (1) (bottom-up) work re-design might need some form of augmentation (i.e., top-down management development) to be successful (Daniels et al., 2017); (2) that organisational interventions (i.e., job re-design) should be integrated with other organisational processes which can influence their implementation and outcome (e.g., management involvement; Tregaskis et al., 2013; see also Nielsen, 2013); and (3) that integration between employment (i.e., management training) and

work practices (i.e., work re-design) appears to be needed to maximise the effects of organisational interventions due to their reciprocal influence (Tafvelin et al., 2018).

By designing and implementing different interventions (bottom-up, top-down, and combined; Figure 2) and providing a general model to test the mechanisms through which these bring their effects, this thesis aims to shed light on different factors (note: further, distinct aims are presented in the following sections). Broadly, the present research aims to assess whether an intervention that integrates top-down and bottom-up elements significantly improves employees' well-being and whether the integrated intervention has a more substantial impact than the top-down and bottom-up interventions' solely. More specifically, this thesis aims to investigate the mechanisms through which the bottom-up and top-down interventions enhance well-being and determine whether one shows more substantial effects on workers' well-being (and well-being related variables) than the other. Simultaneously, the research aims to assess the extent to which and through what processes (e.g., enhanced employees' job crafting) the top-down element augments the bottom-up element's effects. - as introduced above and further discussed below, management development is expected to boost the effects of bottom-up job crafting by helping managers supporting a working context that facilitates the latter.

Figure 2

Implementation of different interventions to compare main effects and interaction effects of a top-down and bottom up intervention
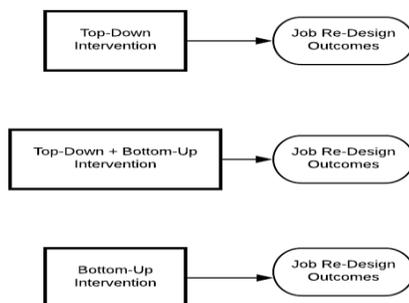
2.1.4. Main Research Questions

To address a gap[6] in the literature about the interplay of top-down and bottom-up influences in job re-design, and following the theoretical arguments discussed above, the following research questions are set[7]:

1. To what degree does a job re-design intervention that purposely combines top-down and bottom-up elements impact employees' well-being[8]?

2. Will employees participating in a job re-design intervention combining top-down and bottom-up elements report higher levels of well-being compared to employees participating in interventions with a top-down and a bottom-up element solely?

Because, as introduced above, a synergistic effect is expected through which the top-down element augments the impact of the bottom-up intervention:

3. To what extent does a top-down job re-design intervention moderate the effects of a bottom-up job re-design intervention on well-being?

While testing whether a combined (top-down and bottom-up) intervention works through the interaction of its individual components and a top-down intervention boosts the effects of a bottom-up intervention, the thesis aims to investigate how an integrated top-down and bottom-up intervention elicits beneficial effects. Unfortunately, most intervention studies largely ignored the psychosocial mechanisms that determined positive outcomes such as enhanced workers'

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[6] Other relevant gaps in the literature addressed in the thesis are discussed in the following sections. For instance, section 2.2.2.1 introduces different methodological limitations in the job crafting literature that the present research aims to address to provide conceptual and methodological contributions.

[7] Three further research questions are developed in the section 2.2.3.

[8] As discussed in section 2.5., the concept of well-being includes affective and cognitive (judgment-focused) elements (i.e., job satisfaction, sense of meaning).

well-being (Bakker & van Wingerden, 2021; Dubbelt et al., 2019). This means it is hard to tell

why interventions worked (not) (Bakker & van Wingerden, 2021) and stresses the need to

investigate in what way interventions work:

4. In what way (i.e., through what process, direct and indirect effects) can a combined

(top-down and bottom-up) intervention lead to positive outcomes and augment the

effects of individual top-down and bottom-up interventions?

(4.a) Do the bottom-up and top-down elements exert an independent, interactive, (or

both) effect on well-being and well-being related variables?

Before discussing specific hypotheses to test these research questions, a theoretical and

practical decision must be taken on which top-down and bottom-up elements, particularly,

should be integrated into the design of a job re-design intervention to improve well-being.

Because, at the time of writing, previous research has not purposefully combined top-down and

bottom-up elements in job re-design, as suggested by Pawson (2013), I rely on theoretical

arguments as well as on the knowledge that emerged from previous research to take this decision

and contribute to bringing the area forward. As discussed in the following chapters, job crafting

and management training in job design-related knowledge and social skills are chosen as

favourable bottom-up and top-down elements.

2.2. Job Crafting

2.2.1. Introduction to job crafting

Job crafting has recently emerged as a bottom-up job re-design method in which

employees proactively modify their own work to fit their values, skills, preferences, and abilities

(Bakker et al., 2012; Oldham & Fried, 2016). A substantial amount of evidence suggests that job

crafting is a promising means to improve well-being (Bakker et al., 2012; Daniels et al., 2017;

Gordon et al., 2018; Nielsen & Abildgaard, 2012; Slemp & Vella-Brodrick, 2014), and it is

therefore chosen as a favourable method of bottom-up job re-design directed at workers' well-

being.

Promising, however, does not mean proven, inasmuch findings on the effectiveness of

job crafting (and job crafting interventions) on well-being provided mixed or partial results

(Daniels et al., 2017; Oldham & Fried, 2016; van den Heuvel et al., 2015; see also next section).

More research is needed to investigate the situational/contextual (and individual) factors (e.g.

certain employment practices) which favour job crafting and job crafting effectiveness (Berg et

al., 2013; Daniels et al., 2017) and address, as discussed below, some conceptual and

methodological limitations that have emerged from previous research. I aim to address these

gaps by pursuing simultaneously distinct lines of inquiry.

In one, as introduced above, I aim to determine whether a (top-down) management

development intervention represents a moderating factor that boosts the effects of a job crafting

intervention. Job crafting, indeed, is expected to have at least some positive effects on

employees' well-being (Tims et al., 2013; Demerouti et al., 2017, 2020; Dubbelt et al., 2019;

Gordon et al., 2018; Slemp & Vella-Brodrick, 2014; Van Wingerden, Bakker, et al., 2017b) and

even stronger effects if augmented by a top-down element (i.e., management development;

Daniels et al., 2017; see also discussion in sections 2.3. and 2.4.). – (Concurrently, the impact of

a top-down intervention solely on employees' job crafting and related outcomes will be assessed;

section 2.4.).

Another line of inquiry (sections 2.2.2. to 2.2.4.) aims to test the effectiveness of a job

crafting intervention, based on a well-powered design, in which job crafting is operationalised

according to a definition that integrates the different conceptual models that can be found in the

literature. Currently, there is not yet agreement in the literature on how job crafting should be

framed or measured (i.e., operationalised) (Hu et al., 2020; Tims & Bakker, 2010) and, as

discussed below, there are good theoretical reasons to argue that job crafting interventions would

benefit from integrating the different models developed. At the same time, I aim to test a model

of the mechanisms through which the intervention broadly and job crafting (as operationalised)

specifically elicit specific outcomes.

2.2.2. The different conceptualisations of job crafting

Two (main) streams of literature can be identified which aim to frame job crafting

according to a theoretical model (Tims & Knight, 2019). One, following the early work on job

crafting by Wrzesniewski and Dutton (2001), suggests operationalising job crafting as a job re-

design method in which employees modify the cognitive, relational, and task boundaries of their

jobs to increase meaningfulness. The other, following the work of Tims and Bakker (2010) and

Tims et al. (2012), indicates that employees may modify their level of demands and resources in

the workplace to improve P-J fit, reduce strain (and thus the risks of burnout) and increase

motivation (and therefore work engagement; e.g., Bakker, 2011; Nielsen & Abildgaard, 2012;

Tims et al., 2016; Tims & Bakker, 2010). Recently, new conceptualisations of job crafting have

emerged, such as the approach-avoidance model of job crafting (Bruning & Campion, 2018;

Zhang & Parker, 2019).

These new conceptualisations, however, tend to overlap, are inconsistent with each other

or have blurred areas that need to be clarified through further empirical evidence (Hu et al. 2020;

Kim & Beehr, 2019). Moreover, it is argued that the new perspectives, by re-defining the core

characteristics (and terminology) of job crafting as defined by the original conceptualisations and

introducing new terms, concepts, and operational definitions such as work role expansion,

avoidance role crafting, metacognition, adoption (e.g., Bruning & Campion, 2018) take a significant departure from the original conceptualisations and the job crafting strategies operationalised in these. This departure makes it hard to draw meaningful comparisons between the vast majority of studies that used one (Wrzesniewski & Dutton, 2001) or the other (Tims & Bakker, 2010) conceptualisations with studies that use these new conceptualisations. The risk is to create many streams of job crafting literature according to the many different conceptualisations. Accordingly, the focus in the present research is primarily on the two main conceptualisations of job crafting and on how the two can be integrated (while remaining faithful to the original conceptual models, operationalisations, and theories) on the basis of previous research, which was largely based on the two dominant perspectives (Tims & Knight, 2019), to inform the design of a job re-design intervention.

In their early conceptualisation of job crafting, Wrzesniewski and Dutton (2001) suggested that by modifying the cognitive, relational, and task boundaries of their jobs, employees would experience a greater sense of meaningfulness in their work. According to Wrzesniewski and Dutton (2001), employees can change (1) the number or type of tasks they perform, (2) the type, range, or nature of their relationships, and (3) the cognitive way in which their view their work. These three crafting activities would fulfil three basic motivations: the desire for control and meaning, the need for connection with others, and the desire for a positive self-image. In further developing this model, Wrzesniewski et al. (2013) and Berg et al. (2013) indicate that by modifying their tasks, cognitions, and interactions at work to allow more expression of their beliefs, values, and strengths, employees can experience a greater alignment between themselves and the work (i.e., P-J fit). The enhanced P-J alignment would allow employees to experience their job as more purposeful and lead to a greater sense of

meaningfulness (Wrzesniewski & Dutton, 2001; Wrzesniewski et al., 2013). Overall, according

to this conceptualisation of job crafting, a positive sense of meaning of the work and of

meaningfulness are at the core of why employees engage in job crafting and how job crafting

determines positive outcomes (although little research has tested the effects of job crafting on

meaningfulness and vice-versa; Tims et al., 2016; Wrzesniewski et al., 2013).

Following the work of Tims and Bakker (2010) and Tims et al. (2012), however, most

research has focused on a different conceptualisation and outcomes of job crafting (Tims &

Knight, 2017; Tims et al., 2016). That is, job crafting has been mainly conceptualised as a job re-

design method through which employees can modify their level of demands and resources in the

workplace (e.g., Demerouti et al., 2015; Gordon et al., 2018; Nielsen & Abildgaard, 2012) to

improve person-job fit, reduce strain, and increase motivation (Tims & Bakker, 2010; Kooij et

al., 2015). Stemming from the job demands-resources (JD-R) model (Bakker & Demerouti,

2007, 2008), this conceptualisation of job crafting indicates that increasing job resources and

challenge demands and lowering the levels of hindrance demands can boost employees' work

engagement, performance, and well-being (Tims & Knight, 2017; van den Heuvel et al., 2015).

Hindrance job demands are those tasks, such as unrealistic deadlines, that unnecessarily threaten

personal growth, might elicit negative emotions, and impact the individual's ability to achieve

their goals (Tims et al., 2013). Reducing hindrance demands should foster work engagement

(making it easier to achieve personal goals) and well-being (hindrance demands emerged as

related to adverse health outcomes, Karasek, 1979; Parker, 2014). Challenge demands are

physically or psychologically taxing tasks that are perceived as rewarding (Tims & Knight, 2017;

van den Heuvel et al., 2015). Increasing challenge demands and job (and personal) resources

(defined above) should reduce the impact of hindrance demands and have motivational effects by

facilitating growth and support goal-achievement (Hakanen et al., 2008; Parker, 2014; Schaufeli et al., 2009). Simultaneously, increased resources can boost the employees' coping ability to offset job demands and enhance their well-being (Bakker et al., 2014). Overall, according to Tims and Bakker's (2010) and Tims et al.'s (2012) conceptualisation of job crafting, by increasing resources and challenge demands, and decreasing hindrance demands, employees should align their job characteristics (i.e., demands and resources) with their needs and abilities and thus increase P-J fit and work engagement (Tims et al., 2016).

Both models provide compelling theoretical arguments on the mechanisms through which job crafting can enhance the workers' experiences, and interventions that adopted one or the other model (Table 1 below provides a summary of previous job crafting interventions) have provided some support on their effectiveness on well-being (Gordon et al., 2018; Sakuraya et al., 2016)[9]. However, from a careful analysis of the literature (section 2.2.3.), it emerges that job crafting interventions would benefit from integrating the two conceptual models. In section 2.2.3., I introduce a new conceptualisation of job crafting that integrates the two main conceptual models to inform the design of a job crafting intervention. Before introducing this new conceptualisation, some limitations in the job crafting literature broadly - and previous job crafting interventions specifically - should be acknowledged.

2.2.2.1. The gaps in the job crafting literature

As introduced in the previous section, before discussing the new conceptualisation of job crafting introduced in this thesis, it is critical to acknowledge some gaps in the job crafting

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[9] As introduced in the contributions section (1.2.) and further discussed in the following sub-section, most previous job crafting interventions had a set of limitations that do not allow to generalise their findings.

literature. For instance, previous research - following either Tims and Bakker's or Wrzesniewski & Dutton's conceptualisation - has not comprehensively tested the proposed mechanisms through which job crafting elicits beneficial effects. It is not entirely established whether job crafting determines positive outcomes such as meaningfulness and, in turn, well-being by enhancing the job characteristics and improving the P-J fit as theorised (i.e., Berg et al., 2013; Geldenhuys et al., 2020; Gordon et al., 2018; Rudolph et al., 2017). Previous research has provided only fragmentary support to theoretical arguments.

For example, Tims et al. (2016) provided evidence that specific job crafting behaviours (i.e., increasing job resources) can enhance P-J fit and, in turn, the employees' sense of meaning at work. However, they did not test whether improved job characteristics mediated the relationship between job crafting and P-J fit. Chen et al. (2014) found that job crafting predicted positively P-J fit and, via the latter, job engagement. Nevertheless, from their findings, it cannot be established whether enhanced job characteristics explain the positive impact of job crafting on P-J fit or whether meaningfulness mediated P-J fit's positive effect on job engagement. Tims et al. (2013) previously provided evidence that specific job crafting behaviours (e.g., increasing social resources) can enhance the perceived quality of the job characteristics in employees and, in turn, improve their well-being. However, they did not test whether P-J fit and meaning at work mediated the relationship between job crafting, improved job characteristics, and well-being. Similarly, Geldenhuys and colleagues (2020) found that specific job crafting strategies (i.e., task and cognitive crafting) predicted meaningfulness and that the latter mediated the relationship between job crafting and positive outcomes (i.e., peer-rated in-role performance). They speculate that job crafting can lead to an improved P-J fit and that the following alignment between work and an employee's self-concept can create personal meaning. However, they did not test this

assumption, making further evidence needed to assess whether a better P-J fit mediates the

relationship between job crafting, meaning at work, and positive outcomes. Overall, research is

needed to test thoroughly the theoretical assumptions over how job crafting elicits its effects. A

better knowledge of the dynamics through which job crafting works is critical to design tailored,

evidence-based interventions (see below).

Previous job crafting interventions did not pay attention to the mechanisms through

which the intervention determined specific outcomes in employees (Dubbelt et al. 2019) or only

focused on the effects of the intervention on the hypothesised outcomes through specific

mediators (e.g., job crafting behaviours; Demerouti et al., 2020; Dubbelt et al., 2019). Based on

previous research, it is not clear whether engaging in job crafting led to enhanced perceived job

characteristics in employees in the context of an intervention (Tims & Knight, 2019). Similarly,

it cannot be established whether the positive effects of an intervention on distal outcomes such as

work engagement (e.g., Gordon et al., 2018; Van Wingerden, Bakker, et al., 2017b) are

explained by an increase in job crafting, and in turn, enhanced job characteristics and P-J fit as

theorised by the authors. A better knowledge of the mechanisms through which job crafting and

job crafting interventions work is critical to understanding how interventions elicit specific

outcomes and design better interventions. For example, without knowing whether an intervention

leads to an increase in challenge demands via job crafting and whether an increase in challenge

demands enhances (or worsens) P-J fit and well-being, it is impossible to make specific

recommendations on whether increasing challenges is a beneficial job re-design strategy.

Finally, although job crafting interventions, broadly, emerged as promising to enhance

employees' well-being (Daniels et al., 2017; Oprea et al., 2019), most interventions have

methodological limitations that limit the generalizability and robustness of the findings and make

it difficult to draw robust conclusions. As shown in Table 1, most job crafting interventions had short follow-ups, small samples, or lacked a control group (i.e., Sakuraya et al. 2016). They have been implemented mainly in the Netherlands and with primarily female participants (Table 1). These factors limit the internal and external validity of a study (Cook et al., 1990; more information in section 3.1.4.) and make it difficult to establish whether, to what extent, in what contexts, and for how long job crafting interventions work as well as to rely on meta-analytic conclusions (e.g., Oprea et al., 2019) regarding the effectiveness of job crafting interventions overall.

The last point is particularly relevant considering that previous interventions followed diverse procedures and obtained diverse or even conflicting outcomes (even when considering the same intervention, e.g., Sakuraya et al. 2016, 2020). Moreover, previous studies based the intervention on different operational definitions and program theories, an aspect that further limits the generalisability of previous findings. Most interventions were operationalised according to Tims & Bakker's model. Nevertheless, some of these interventions (e.g., Demerouti et al., 2017; van den Heuvel et al., 2015) included background theory on Wrzesniewski and Dutton's model while others (e.g., van Wingerden, Bakker, et al., 2017b) based the intervention on the Michigan Job Crafting Exercise (Berg et al., 2008) which was developed based on Wrzesniewski and Dutton's model. Other studies (Kooij et al., 2017; Kuijpers et al., 2020), starting from Wrzesniewski and Dutton's conceptualisation, developed subordinate models (i.e., crafting towards interests, strengths, or development). Two studies were explicitly based on the original Wrzesniewski and Dutton's conceptualisation (i.e., Sakuraya et al. 2016, 2020). None of the previous studies provided a thorough discussion about why one model (i.e., Tims &

Bakker's) was favoured over the other (i.e., Wrzesniewski & Dutton, 2001) and the related

implications (e.g., the exclusion of specific job crafting strategies such as cognitive crafting).

Overall, it is critical to implement well-powered interventions based on well-defined

program theories to draw more robust conclusions on the long-term effects of job crafting

interventions. The present research aims to address the gaps in the literature introduced in this

section by (1) providing a comprehensive job crafting model to test the mechanisms through

which job crafting (and a job re-design intervention) work. Simultaneously, (2) it aims to use a

more robust design than most previous interventions (i.e., longer follow-up, larger sample) and

(3) to define a set of procedures that integrate previous research and can facilitate replication

(sections 3.1.4. and 3.2.2.). The proposed model of job crafting stands on a new

operationalisation of the latter. Indeed, regardless of the gaps discussed above, as introduced in

section 2.2.2. above, from previous research, it emerges that job crafting interventions would

benefit from integrating the two main conceptual models of job crafting (i.e., Tims and Bakker's

and Wrzesniewski and Dutton's).

Table 1

Summary of Job Crafting Interventions ordered by publication date

Authors and Year	Intervention Steps	Follow-up	Sample Size (Experimental /Control) - Gender	Sample Characteristics (Occupation – Location)	Overall findings
van den Heuvel et al. (2015)	Job crafting workshop: 1. Background on JD-R model and job crafting. 2. Job Map (map resources/demands/tasks on a poster). 3. Personal crafting stories shared and analysed. 4. Job Crafting Plan (seek resources, reduce demands, seek challenges) carried over 4 weeks. - Four weeks - 5. Reflection session.	**1-2 weeks** after the intervention.	N = 86 (Experimental N = 39; Control N = 47) -66.7% Male.	Police employees – Netherlands	• The main analyses (i.e., repeated measures ANOVA [RM-ANOVAs]) did not show higher levels of seeking resources, seeking challenges, reducing demands, leader-member exchange (LMX), self-efficacy, positive affect, and negative affect at T2 in the experimental group compared to the control group. • Subsequent analyses (i.e., paired t-tests) indicated that the intervention group reported less negative affect, higher self-efficacy, higher developmental opportunities, and LMX at T2 compared to T1. • Weekly levels of seeking resources related positively to weekly levels of LMX and developmental opportunities. Weekly levels of seeking resources and of reducing demands related positively to weekly positive affect. Weekly job crafting did not affect weekly self-efficacy or weekly negative affect.
Holman & Axtell (2016) **Note:** Not specifically a job crafting intervention but involving some (participative) bottom-up elements.	Two-day workshop: 1. Assessment phase, 1-day workshop (identify job tasks and obstacles for effective work). 2. Employees rate job characteristics. 3. Employees discuss three job design scenarios. 4. Employees suggest changes to improve job characteristics, well-being, performance. The changes were discussed. 5. Develop proposals for each initiative. 6. Implement initiatives (e.g., more responsibilities and discretion over when to complete team administrative tasks).	**1 month** after the intervention.	T1 N = 96 – T2 matching N = 62 (experimental N = 23/control = 39) - 55% Female	Call centre – UK civil service	• Experimental group reported higher levels of job control and feedback at T2 compared to the control group. • Experimental group reported higher levels of well-being (but not of psychological capital fulfilment and job performance) at T2 compared to the control group. • Significant positive relationships were found between job control and well-being, psychological contract, and job performance. Feedback was positively related to well-being and psychological contract (but not significantly associated to job performance). • The intervention had a positive indirect effect on well-being via job control and feedback, and a positive indirect effect on performance via job control (but not feedback). • The intervention also had a positive indirect effect on psychological contract fulfilment via job control and feedback.
Van Wingerden et al. (2016)	Workshop one (4 hours): Personal resources. 1. Past, Present, Future. 2. Feedback, Compliments.	**1 week** after the intervention.	N = 67 (experimental N = 43; control N	Health Care Professionals - Netherlands	• Intervention was related to an increase at T2 in job crafting (crafting structural resources and challenging demands), psychological capital, work engagement,

	3. Refusing requests.
	Workshop two (4 hours): Job resources.
	    4. Job-Person Analysis.
	    5. Job Crafting Plan (increase social job resources, structural job resources, challenging job demands).
	     - Two weeks –
	    6. Evaluation (sharing experiences, evaluation process, celebrating success).
			= 24) - 96% Female		(self-ratings), and job performance in the experimental group compared to the control group.

van Wingerden, Derks, et al., 2017 (first published 2015)	Intervention 1 (job crafting): three training sessions over six weeks.
	    (Session 1)
	    1. Job Analysis
	    2. Person Analysis
	    3. Job plus Person Analysis
	    4. Discussion about what participants could change to increase social job resources, to increase challenging job demands, to increase structural job resources, or to decrease hindering job demands.
	    5. Personal job crafting plan.
	    6. (Session 2) Share experiences and discuss progresses.
	    7. (Session 3) Evaluation (whether participants succeeded in achieving job crafting goals). Discussion of what participants would need to maintain a better person-job fit.
	Intervention 2 (Personal Resources Intervention). Three sessions over six weeks:
	    1. Past, Present, Future
	    2. Feedback, Compliments
	    3. Refusing requests
	Intervention 3 (combining the job crafting intervention and the personal resources intervention).
		1 week after the intervention.	N = 132 (T2 102). Experimental: Personal resources intervention N = 26; job crafting intervention N = 32; combined personal resources + job crafting intervention) N = 26 - Control N = 18 - 89% Female	Teachers – Netherlands	• Participants in the job crafting intervention did not report an increase in work engagement and in-role performance at T2 group compared to the control group.
					• Participants in the personal resources intervention reported higher levels of work engagement at T2 compared to the control group.
					• Participants in the combined intervention reported higher levels of in-role performance at T2 compared to the experimental group.
					• The job crafting intervention was related to an increase in job crafting behaviours (excluding increasing challenging job demands) in experimental group.
					• Most participants' chosen job crafting goals and actions involved decreasing hindrance demands.

Sakuraya et al. (2016)	Session 1 (120 minutes)
	    1. Introduction to job crafting including task, relational and cognitive crafting. Case studies to facilitate understanding of job crafting.
	    2. Participants shared personal job crafting stories.
	    3. Personal job crafting plan (task crafting, relational crafting, and cognitive crafting) to carry out over two weeks (homework booklet provided).
	     - Two weeks -
	    Session 2 (120 minutes)
	    4. Participants reviewed their job crafting plan individually.
	    5. Participants shared their reflections in group and discussed the feasibility and sustainability of job crafting in practice.
	    6. Modified job crafting plan.
		T2 **immediately after** intervention – T3 **one month** after intervention	N = 50 (T2 N= 44; T3 N= 42)/ <u>**No control**</u>	Managers of a private company and a private psychiatric hospital - Japan	• The job crafting intervention had a positive, small impact on participants' levels of work engagement at T2 but not at T3.
					• The job crafting intervention had a favourable, small impact on participants' psychological distress at T3 but not at T2.
					• The job crafting intervention had a positive, small impact on participants levels of job crafting (as a unique construct) at T2 and T3.
					• The job crafting intervention had a positive, small impact on participants' levels of cognitive crafting at T2 and T3 but did not have a significant effect on participants levels of task crafting and relational crafting.

van Wingerden, Bakker, et al. (2017a)	Session 1. Job Crafting (8 hours):
	  1. Job Analysis.
	  2. Person Analysis .
	  3. Job plus Person Analysis.
	  4. Personal job crafting plan.
	(Four weeks – job crafting plan)
	Session 2. Evaluation (4 hours)
	  5. Assessment, sharing of experiences.
	  6. Acknowledgement of success and obstacles.
		T2 **two weeks** after intervention – T3: **one year**	N = 75 (T2 = 75; T3 = 71) – (Experimental N = 45; Control = 30) - 83% Female	Teachers - Netherlands	• Participants in the experimental group reported an increase in increasing challenging demands and decreasing hindrance demands at T2.
					• No changes were detected in the experimental group in increasing structural and social resources at T2.
					• Participants in the experimental group reported a decline in decreasing hindrance demands and an increase in increasing structural resources at T3
					• No changes in the participants' levels of job demands were detected at T2 and T3.
					• Participants in the experimental group reported an increase on feedback and development opportunities at T3 but not at T2.
					• An indirect effect was found of the intervention on opportunities for development through increasing social and structural resources and increasing challenging demands. No indirect effects were found of the intervention on feedback through job crafting.
					• No changes on participants' level of resilience were detected at T2 and T3. An increase in self-efficacy was detected in the experimental group from T2 to T3 but not from T1 to T2.
					• No changes on participants' level of work engagement were detected at T2 and T3. Participants in the experimental group reported a decrease in role performance at T2 but an increase at T3.
					• An indirect effect was found of intervention on in role performance through increasing structural resources (but not through other crafting behaviours).

van Wingerden, Bakker, et al. (2017b)	Session 1, Job Crafting (4 hours):
	  1. Person Analysis.
	  2. Job Analysis.
	Session 2, Job Crafting (4 hours)
	  3. Job plus Person Analysis.
	  4. Personal job crafting plan.
	(Four weeks – job crafting plan)
	Session 3, Evaluation (4 hours)
	  5. Assessment, sharing of experiences.
	  6. Acknowledgement of success and obstacles.
		Two weeks after the intervention	N = 71 - (Experimental N = 41; Control N = 30) - 92% Female	Teachers - Netherlands	• An increase in job crafting behaviours was detected in the experimental group at T2 (considering the sub-components of job crafting only increasing challenging demands increased).
					• An increase in work engagement was detected in the experimental group at T2.
					• Basic need satisfaction mediated the relationship between job crafting and work engagement.

Kooij et al. (2017)	Job Crafting Workshop (4 hours):
	
	  1. Identify tasks performed at work.
	  2. Classify tasks as small, medium, large.
	  3. Classify tasks as "traditional" (performed since employees started their job) or "new" (introduced later).
	  4. Identify work-related well-being risks, and indicate top three strengths, interests, needs.
	  5. Indicate which tasks reflected the participants' strengths and interests.
		One/two weeks following intervention (i.e., step 8)	N= 86 – (Experimental N = 31; Control N = 55) - 79% female	Different departments of an insurance company (i.e., administrator, manager, policy worker) – Netherlands	• No effects of the intervention on Job crafting towards strengths (JC-strengths) or job crafting towards interests (JC-Interests) were found at T2.
					• A positive association was found between T2 JC-strengths and T2 JC-interests with T2 needs-supply fit; and between T2 JC-strengths and T2 demands-ability fit. These associations were not related to the intervention (as the intervention did not increase job crafting behaviours); thus, the intervention did not enhance P-J fit via job crafting as hypothesised.

	6. Identify tasks that participants wanted to keep in the near future. Choose three work tasks to craft to align better the job with personal interests and strengths. 7. Job crafting plan. - Two weeks – 8. Accomplishments and obstacles for job crafting discussed by phone with the research team.				• No association between T2 JC-interests and T2 DA-fit. • A positive indirect effect of the job crafting intervention on person–job fit via JC-strengths (but not JC-interests) was found among older workers only.
Demerouti et al. (2017)	Job Crafting Workshop (three hours) 1. Job Analysis (most important tasks and sub-tasks) 2. Analysis of job resources and job demands and of how these were changing in response to organizational change and recession. 3. Background theory of job crafting explained. Participants identified changes in job characteristics or work situations experienced that they could alter via job crafting. 4. Participants discussed potential job crafting actions identified in previous step to help each other find ways to craft their job. 5. Job crafting plan (SMART job crafting goals to pursue over three weeks). - Four weeks - 6. Reflection Session	**Four weeks** after the intervention.	N = 72 – (Experimental N = 30; Control N = 42) - 81% female	Employees of a municipality – Greece	• Participants in the experimental group did not report higher levels of seeking challenges and seeking resources at T2 compared to the control group. • Higher levels of reducing demands were detected at T2 in the experimental group compared to the control group. Reducing demands, however, were negatively related to adaptive performance. • Participants in the experimental group revealed higher levels of positive affect (note p > .05) and openness to change compared to the control group. • No improvements in adaptive performance were detected in the experimental group. (Subsequent analyses) • An indirect effect was found of the intervention on openness to change and adaptive performance via positive affect (not explained by an increase in job crafting).
Gordon et al. (2018) - study 1	Job Crafting Workshop (three hours): 1. Introduction to job crafting strategies (i.e., seeking challenges, seeking resources, and reducing demands). 2. Participants shared experiential learning narratives to identify how their work behaviours could be viewed as a form of job crafting and to better understand the concept of job crafting. 3. Personal job crafting plan to increase resources and challenges and reduce demands (specific crafting actions to accomplish over three weeks). 4. Online follow-up. Researchers sent reminders of job crafting goals (Monday) and emails to ask whether the weekly goal had been achieved (Friday).	T2 **three months after** T1.	N = 119 – (Experimental N = 48; 58% male; Control N = 71, 81.1% male)	Medical Specialists - Netherlands	• Experimental group reported significantly higher levels of seeking challenges and reducing demands (but not seeking resources) at T2 compared to the control group. • Experimental group reported significantly higher levels of health, work engagement, adaptive and contextual performance at T2 compared to the control group. Experimental group reported significantly lower levels of exhaustion at T2 compared to the control group. • Indirect effects of the intervention on well-being through job crafting only partially confirmed. I.e., Intervention associated with changes in well-being only when employees were seeking challenges. • Reducing demands was associated with a decrease in health and work engagement and an increase in in exhaustion (these relationships were not associated with the intervention).
Gordon et al (2018) - study 2	Job Crafting Workshop (three hours): 1. Introduction to job crafting strategies (i.e., seeking challenges, seeking resources, and reducing demands). 2. Participants shared experiential learning narratives to identify how their work	T2 **one month and a half** after T1.	N = 58 – (Experimental N =32, 12.5% male; Control N = 26, 7.7% male)	Nurses - Netherlands	• The experimental group reported significantly higher levels of seeking resources and reducing demands (but not seeking challenges) at T2 compared to the control group. • Experimental group reported significantly higher levels of work engagement and adaptive performance, and

	behaviours could be viewed as a form of job crafting and to better understand the concept of job crafting. 3. Personal job crafting plan to increase resources and reduce demands (specific crafting actions to accomplish over three weeks). Increasing challenges was not included as a job crafting goal.				• lower levels of exhaustion at T2 compared to the control group. • The experimental group did not report significantly higher levels of subjective contextual and task performance, and of objective performance at T2 compared to the control group. • Indirect effects of the intervention on well-being through job crafting only partially confirmed. I.e., The intervention was associated with changes in well-being only when employees were seeking resources.
Costantini and Sartori (2018) **Note:** Not specifically a job crafting intervention. A positive psychology intervention which involves bottom-up elements that can be connected to cognitive crafting (and personal resources crafting).	Intervention (three day-long sessions): 1. Framing: help participants focus on the positive (and not negative) aspects of work, transform limiting beliefs, reframe negative experiences. 2. Attitudes: help participants reflect on the attitudes needed for better work engagement and well-being. Participants learn to look at situation from a positive perspective. 3. Meaningfulness: help participants to reflect on the link between personal values and the organisational mission to enhance sense of meaning and purpose. 4. Identity: help participants to restore a sense of affiliation with the organisation and to reflect on personal aspirations at work. 5. Leading self: help participants to develop better self-awareness and emotional maturity. 6. Yoked together: help participants to build a feeling of connection with colleagues and the organisation.	**Two weeks** after the intervention.	N = 43 - 60.2% females **Note:** No control group.	Office Workers – Italy	• T-tests revealed that participants had higher levels of work engagement, positive emotions, and job crafting at T2 compared to T1. • T1 job crafting significantly predicted T1 positive emotions which in turn positively predicted T1 work engagement. • T1 work engagement negatively predicted T2 job crafting.
Dubbelt et al. (2019)*	Job Crafting Workshop (four hours): 1. Concrete experiences. (1) Real life examples. (2) Learning Narratives (participants reflect on positive past behaviours in terms of problem solving). 2. Reflection. Participants reflect on behaviours useful to attain work goals. Group exercise to stimulate each other on proactive, problem-solving behaviours. 3. Abstract concepts. Demonstrating the value of job crafting for work outcomes under a job demands-resource perspective. 4. Creating new experiences. (1) Job crafting plan. Three goals to pursue over three weeks (i.e., seeking resources, decreasing demands, seeking challenges). (2) Weekly reminders. (3) The facilitators encouraged the participants to	**Six weeks** after the workshop.	T1 N = 119 - (Experimental N = 60, 63.3% female; Control N = 59, 59.3% female). T2 N = 78 (Experimental N = 40; Control N = 38).	University employees and academics – Netherlands	• The intervention was related to an increase in seeking resources and decreasing demands in the experimental group compared to the control group. • The intervention did not increase seeking challenges behaviours. • The intervention was related to an increase in work engagement (but not task performance and career satisfaction) in the experimental group compared to the control group. • Seeking resources (but not decreasing demands) partially mediated the relationship between the intervention and work engagement. • A positive indirect effect was found of the intervention on task performance and career satisfaction via seeking resources. • Across the entire sample, seeking resources was significantly related to work engagement, task

	reflect on obstacles and facilitating factors for job crafting. 5. Evaluation meeting (four weeks after the workshop and the second questionnaire).				performance, and career satisfaction (seeking challenges and decreasing demands were not).
Kuijpers et al. (2020)*	1. Pre-workshop homework assignment (Reflected Best-Self exercise to identify strengths, interests and best achievements). Job crafting workshop (two hours): 2. Job analysis 1 (identifying all the tasks performed at work). 3. Job analysis 2 (classify tasks either as "traditional tasks," or "new tasks"). 4. Review of the pre-workshop assignment and matching of strengths and interests to work tasks (i.e., called job-plus person analysis in other studies above). 5. Participants choose three work tasks to craft to align their job better with their strengths, interests or development needs. Selection of one job crafting goal to pursue over three weeks. -Three weeks - (One-hour workshop) 6. Participants discuss achievements and ways to cope with setbacks.	**One/Two** weeks after the last workshop.	N = 99 (Experimental N =45; Control = 54) – 78% female **Note:** Participants could choose whether to participate to the questionnaire only.	Employees of a health care organization - Netherlands	• The job crafting intervention did not predict job crafting behaviours at T2 (i.e., crafting towards strengths, crafting towards interests, and crafting for development). • The intervention did not predict T2 Dedication, Absorption, and Vigour. • Among the whole sample, T2 crafting towards strengths predicted vigour, dedication, and absorption at T2. T2 Crafting towards interests predicted T2 dedication and absorption but not vigour. T2 Crafting for development was not related to any outcome. • Amongst employees with a high workload, the intervention was positively related to job crafting towards interests, which in turn was related to higher absorption and dedication (moderated mediation).
Sakuraya et al., 2020*	Session 1: 120 minutes 1. Introduction to job crafting including task, relational and cognitive crafting. Job crafting case studies collected in a booklet. 2. Participants shared personal crafting stories. 3. Personal job crafting plan (task crafting, relational crafting, and cognitive crafting). 4. Email or letter follow-up. (One month) Session 2: 120 minutes 5. Participants reviewed their job crafting plan individually. 6. Participants shared their reflections in group and discussed feasibility and sustainability of job crafting in practice. Modified job crafting plan. 7. Email or letter follow-up. **Note:** the above reflect the steps of the original intervention as in Sakuraya et al. (2016) with the two changes mentioned by Sakuraya et al. (2020) included. The specific steps of the intervention are not provided in Sakuraya et al. (2020), although the authors indicate that the original intervention represented the basis of the following one with two changes (included above).	T2 **two months** after intervention (3 months after baseline survey); T3 **five months** after intervention (6 months after baseline survey)	T1 N =281 (experimental N = 138 – 59.4% male; control N = 143 - 60.8% male); T2 N = 249 (experimental N = 118; control N = 131); T3 N = 223 (experimental N = 99; control N = 124).	Employees of six different workplaces - Japan	• The job crafting intervention did not have a significant effect on work engagement and on job crafting behaviours in the experimental group compared to the control group at both T2 and T3. • (The sub-group of) participants with low levels of job crafting behaviours reported significantly higher level of work engagement compared to the control group (the effect size was small and non-significant).

Hulshof et al. (2020)*	Workshop 1 (5.5 hours) 　1. Concrete Experiences: real-life examples of job crafting. 　2. (1) Reflection: mapping exercise, i.e., job analysis in which participants distinguish between resources and demands. (2) Reflection on past experiences of job crafting. 　3. Abstract concepts: explaining to participants the benefits of job crafting for work-related outcomes and introducing the concept of empowering service. 　4. (1) Creating new experiences: SMART job crafting plan to pursue over four weeks (i.e., seeking social and structural resources, seeking challenging, decreasing hindrances). (2) In couples, reflection on possible obstacles and facilitating factors for job crafting. (3) Weekly remainders by email. 　　　- Six weeks - Workshop 2 (two hours): 　5. Concrete experiences of job crafting after workshop 1. 　6. (1) Celebrating success. (2) In groups, reflecting on goals set, obstacles, facilitating factors. 　7. Abstract concepts: Emphasising the benefit of job crafting under the JD-R model perspective. 　8. Creating new experiences: discussing how to implement job crafting strategies in the daily routine.	**Three months** after the intervention.	T1 N = 163 (Experimental N = 74 – 66.2% female; Control N = 89) – T2 N = 127 (Experimental N = 66; Control N = 61).	Employees of an unemployment agency - Netherlands	• RM-ANOVA did not show a significant increase in job crafting behaviours (i.e., increasing structural and social resources, increasing challenges, and decreasing hindrances) at T2 in the experimental group compared to the control group. T-test showed a significant increase in reducing hindrances (small effect size) in the experimental group and not in the control group. • RM-ANOVA did not show a decrease in work engagement at T2 in the control group compared to the experimental group (as hypothesized) but did show a decline in T2 empowerment in the control group compared to the experimental group (small effect size). • T-test shows a decline in work engagement in the control group (small effect size) and not in the experimental group at T2. • No changes in (self-rated) performance detected at T2 between experimental and control groups.
Demerouti et al. (2020)*	Workshop 1 (3 hours) 　1. Concrete experiences: real-life examples of job crafting; job analysis; situated learning narratives (i.e., employees report past job crafting experiences). 　2. Reflection: group exercise to stimulate reflection on problem-solving exercises. 　3. Abstract concepts: demonstrating the value of job crafting for work-related outcomes. 　4. Creating new experiences: SMART goal setting for the following four weeks (w1: seeking resources; w2: optimizing demands; w3 seeking challenges; w4 seeking resources). Reflect about obstacles and facilitating factors to job crafting. Weekly reminders. (Workshop 2) Reflection meeting.	**Eight weeks** after workshop 1 (**immediately before** workshop 2).	Experimental: T1 N = 65 (46% female), T2 53. Control N = 16 – 29% female).	Employees in the logistics departments of two stores of a multinational retail organization - Netherlands	• According to repeated-measures GLM, participants in the experimental group did not report a significant increase in seeking resources and optimizing demands but reported higher levels of seeking challenges. • Participants in the experimental group reported higher levels of change attitude (only in its behavioural component but not in its affective and cognitive component), safety behaviour, and lower levels of exhaustion compared to the control group. • Paired-samples t-tests revealed that participants in the experimental group reported higher levels of optimizing demands and change attitude (in its cognitive component). • An indirect effect of the intervention (via seeking challenges) on exhaustion and safety behaviour was not found. The intervention had a positive indirect impact (via seeking challenges) on change attitude.

Note. * = Published after the implementation of the present intervention.

2.2.3. A new operationalisation of job crafting and two additional research questions

As introduced above, job crafting interventions would benefit from integrating the two conceptual models. For instance, the exclusion of cognitive crafting in Tims and Bakker's (2010) model reduces the conceptualisation of job crafting (Nayani, 2017) and limit its potential effects. According to Brickson (2011), in a paper where she analyses job crafting introspectively, cognitive crafting represented the most significant type of crafting behaviour. Buonocore et al. (2020) argue that cognitive crafting represents the first and foremost moment in which the job crafting process starts and through which individuals develop other job crafting strategies (i.e., task and relational crafting) to enhance the quality of their jobs or to cope with stressors.

Buonocore and colleagues (2020) found that accountants who experienced moderate (but not high or low) job insecurity levels were more likely to engage in cognitive crafting. According to the authors, cognitive crafting is an important (bottom-up) strategy to cope with unfavourable situations and, ultimately, maintain high levels of work engagement and motivation. Recently, Geldenhuys and colleagues (2020) found that cognitive crafting positively predicted meaningfulness and had a stronger impact on the latter compared to task and relational crafting (relational crafting did not significantly predict meaningfulness). Cognitive crafting, in turn, led to higher peer-rated in-role and extra-role performance via meaningfulness (Geldenhuys et al., 2020). Overall, recent research suggests that cognitive crafting can be crucial to cope with adverse situations and favour positive psychosocial outcomes.

Moreover, as underlined by Nayani (2017), Zhang and Parker (2018), and Geldenhuys et al. (2020), cognitive crafting is a particularly relevant type of job crafting when individuals have limited control over certain aspects of their jobs, in very constrained and rigid jobs, or in jobs

that do not allow for structural changes. Evidence (e.g., Tims et al., 2013) suggests that some

employees might have limited control over given aspects of their jobs (e.g., hindrance demands,

amount of interactions) and might thus benefit from cognitive crafting to boost their coping

efficacy and enhance their experience of work (Berg et al., 2008; Berg et al., 2013; Geldenhuys

et al., 2020).

For instance, in Tims et al. (2013), job crafting was not related to a reduction of hindering

demands. In their experimental studies, Gordon et al. (2018) and Dubbelt et al. (2019) found that

the interventions assisted employees in the experimental group to increase the job crafting

activity of decreasing hindrance demands. However, in both studies crafting hindrance demands

did not mediate the relationship between the intervention and positive outcomes such as well-

being or work engagement; a finding that may suggest that the job crafting efforts of participants

(in terms of reducing demands) were unsuccessful due to contextual or situational factors.

Different studies found a negative or non-significant relationship between crafting hindrance job

demands and work engagement (Brenninkmeijer & Hekkert-Koning, 2015; Petrou et al., 2012)

or well-being (Demerouti et al., 2017; Gordon et al., 2018; Tims et al., 2013; see also

Lichtenthaler & Fischbach, 2019; Rudolph et al., 2017). These findings, overall, might indicate

that employees cannot or are not willing to craft or reduce their hindrance demands for several

reasons. For instance, employees might feel that decreasing hindrance job demands is socially

undesirable (Fong et al. 2020; Tims et al., 2013) and harm their reputation or performance

assessment (Tims et al., 2015b). Line managers (or contextual factors) might influence the

amount of demands employees have and the amount of control, autonomy, and willingness they

have to craft these (Berg et al., 2013; Fong et al., 2020; Gordon et al., 2018; Greasley &

Edwards, 2015; Tims et al., 2013). In some occupations (e.g., policing), it might not be feasible

to craft the levels of demands (Biggs et al., 2014) due to security, bureaucratic, or contextual reasons. Some employees cannot limit unwanted interactions, even if these are emotionally exhausting (Cain, 2012). Overall, some employees might lack control over certain demands and aspects of their jobs and might benefit from other tools (i.e., cognitive crafting) to cope with these.

Tims and Bakker's (2010) and Tims et al.'s (2012) conceptualisation, nevertheless, does not directly address situations when certain demands cannot be crafted. Thus, it requires, in some circumstances, actions (reducing hindrance demands) that might be impractical and lead to a loss of resources (e.g., time, energy) or even frustration. An aspect that might explain why in the studies cited above crafting to reduce hindrance demands, counterintuitively, did not relate to well-being. Moreover, without providing tools to address situations where hindrance demands cannot be crafted, the JD-R conceptualisation of job crafting may limit the potential of job crafting interventions. Solberg and Wong (2016), for instance, found a negative relationship between perceived role overload and job crafting, indicating that in situations where employees have limited control over hindrance demands, job crafting (based on the JD-R model) might have a lower possibility of success (Solberg & Wong, 2016; see also Demerouti et al., 2017).

Introducing cognitive crafting to interventions that use Tims and Bakker's model might increase their effectiveness by helping employees reframe how they perceive their tasks (e.g., useful/challenging instead of stressful), perceive a greater autonomy in constrained circumstances, and thus increase their crafting activity (Solberg & Wong, 2016). As a result, cognitive crafting can facilitate positive experiences such as meaning, achievement, ability to cope with adversity (Berg et al., 2008; Berg et al., 2013; Buonocore et al. 2020, Geldenhuys et al., 2020) and hence enhance employees' well-being (see Seligman, 2012).

Demerouti and colleagues' (2017) findings provide further support on the potential value of cognitive crafting in job crafting interventions and constrained work situations. They implemented a job crafting intervention based on the JD-R model in a context of austerity-led change. Demerouti et al. (2017) found, in line with the studies above, that generally reducing demands had adverse effects on employees and related negatively to adaptive performance. However, the individual's assessment of change (the subjective evaluation of whether the change is positive or negative) moderated the relationship between reducing demands and performance. According to the authors, employees who rated the (austerity-led) changes more positively crafted their job demands more constructively (e.g., by trying to understand the change) and did not experience adverse effects by crafting their demands (Demerouti et al., 2017). Although Demerouti et al. (2017) did not introduce cognitive crafting as a job crafting strategy in their intervention, their findings suggest that a positive versus negative (cognitive) appraisal of work and the circumstances around work (i.e., change) determines whether reducing demands has positive or negative outcomes. Therefore, in job crafting interventions, teaching employees to focus on the positive aspects of the job can (amongst other cognitive crafting strategies) be crucial to determine positive outcomes (and to moderate the effects of demands crafting on psychosocial outcomes positively).

Cognitive crafting might not only be useful to target situations where employees have little control. It might alter how employees think about their relationships or job as a whole (Berg et al., 2013), help building a positive work identity, and increasing meaningfulness (e.g., a school custodian who thinks of his job as enabling education, Geldenhuys et al., 2020; Wrzesniewski et al., 2013). According to Niessen and colleagues (2016), cognitive crafting enhances P-J fit by changing the meaning of work and work identities. Briefly, adding cognitive crafting to Tims

and Bakker's model would broaden its conceptualisation and is expected to boost its

effectiveness on well-being in the context of a job re-design intervention.

On the other hand, Wrzesniewski & Dutton's (2001) model would benefit from

conceptualising tasks and relationships in terms of demands and resources. By categorizing all

jobs characteristics as demands and resources, it is possible to identify many and specific aspects

that employees can alter in their jobs (Bakker et al., 2012) that are not limited to tasks and

relationships. For instance, while some employees (e.g., sales assistants) might not have much

span to change with whom they interact and when, they might craft other resources such as

personal (e.g., resilience) or structural (e.g., development opportunities) resources. Directly

calling the employees attention on reducing demands when they are becoming hindering or

overwhelming (and increasing resources or challenges) could be essential to avoid negative

consequences such as burnout (Lepine et al., 2005) or feeling of exhaustion (Salmela-Aro et al.,

2009).

Conversely, interventions using Tims and Bakker's (2010) conceptualisation might

benefit from adding a dimension (or instructions) in which workers are specifically driven to

craft (not only increase) the relational boundaries of their jobs. Most interventions based on this

conceptualisation instruct workers to increase or seek (social) resources (Demerouti et al., 2017;

Dubbelt et al., 2019; Gordon et al., 2018; Hulshof et al., 2020; van den Heuvel et al., 2015; van

Wingerden et al., 2016, 2017) without stressing that they can change (including reducing or

reframing) the type and quality of relationships to cultivate meaningfulness (Berg et al., 2013).

As indicated by Daniels et al. (2013), while resources are important to achieve work or personal

goals, they need a shift in knowledge to be enacted (i.e., understanding why and how to change

them as well as how to use them well). Namely, employees can learn to craft the relational

boundaries of their jobs with the specific purpose of increasing meaning at work through distinct

strategies (e.g., identifying people with similar interests and values, mentoring new employees).

These crafting strategies (see section 3.2.2.1. in the Method) are not limited to merely (and

generically) seeking more social resources but include a broader set of options to assist workers

in using better (and more purposefully) the social resources available. Overall, arguments

support the need to integrate, in job re-design interventions, the two conceptual models to

broaden the conceptualisation of job crafting and its applicability (details on the design of the

intervention are provided in section 3.2.2.1 of the Method). Conceptually, the integration of the

two models is expected to maximise the outcomes of job crafting.

Elements from Tims and Bakker's model are expected to help employees align the job

characteristics (demands and resources) to their personal abilities and needs and thus improve P-

J fit (Kristof-Brown et al., 2005; Tims et al., 2013; Tims & Bakker, 2010), which in turn boost

meaningfulness (Bailey et al., 2019; Geldenhuys et al., 2020; Tims et al. 2016; Wrzesniewski et

al., 2013) as well as their coping efficacy, job satisfaction, work engagement, and well-being

(Berg et al., 2013; Chen et al. 2014; Bailey et al., 2019; see the latter for a review of the literature

on meaningful work and its antecedents and outcomes). For instance, by crafting their job

resources to better fit with the individual's needs and abilities, employees are expected to

increase energy and motivation, enhance focus, perceive more control, reduce (or better cope

with) those demands that deplete one's resources, satisfy psychological needs, and better pursue

their goals (Bakker & Demerouti, 2014; Bruning & Campion, 2018; Daniels et al., 2014; Dubbelt

et al., 2019). Therefore, resource crafting is expected to enhance coping efficacy and work

engagement by improving the P-J fit. Similarly, crafting challenges mobilizes one's coping

resources, increases motivation, and diminishes exhaustion (Petrou et al., 2015; Prieto et al.,

2008). Crafting challenges can facilitate active learning and skills development (enhancing efficiency/performance, goal achievement) and prepare employees to cope with future stressors (Petrou et al., 2015). Overall, job strain and work engagement can be influenced by job crafting via enhanced job characteristics and P-J fit (Dubbelt et al., 2019; Niessen et al., 2016). In particular, job crafting improves P-J fit by optimizing resources and demands (Chen et al., 2014; Lu et al., 2014; Tims et al. 2016) (although further evidence, such as the present study, are needed to examine the antecedents of P-J fit; Kooij et al., 2017). P-J fit, in turn, emerged as a mediator in the relationship between job crafting and positive outcomes (Chen, 2014; Tims et al., 2016).

Elements from Wrzesniewski and Dutton's (2001) model (cognitive, relational crafting), in turn, are expected to further enhance employees' sense of meaning at work (and coping efficacy) through actions such as increasing interactions with people who enable them to feel a sense of pride or broadening the perceptions of the purpose/impact of their jobs (see Berg et al., 2013; Geldenhuys et al., 2020; Wrzesniewski et al., 2013).

Integration of both models is thus expected to maximize employees' coping efficacy, motivation, work engagement, goal achievement, and well-being (Chen et al., 2014; Tims et al., 2013, 2016; Tims & Bakker, 2010; Wrzesniewski et al., 2013) by enhancing their perceived job characteristics, P-J fit, and sense of meaning at work (figure 3). The following definition of job crafting is proposed according to the discussion above:

- Job crafting refers to the self-initiated changes workers make in their level of resources (job, personal and social resources) and (hindrance and challenge) job demands, as well as in the cognitive boundaries of their jobs.

Figure 3

Conceptual map of the mechanisms through which the proposed definition of job crafting enhances workers' well-being
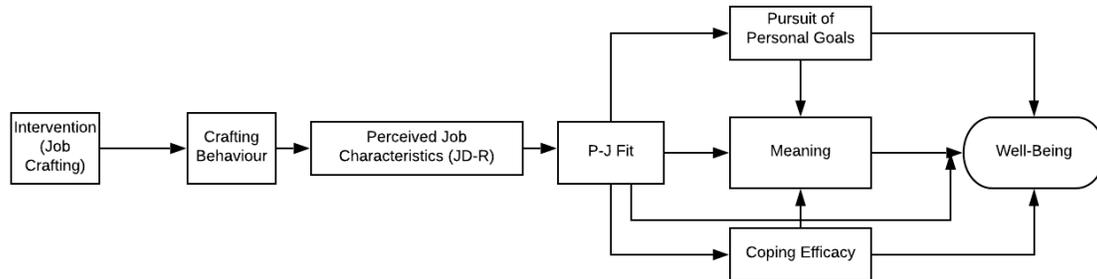
Job crating is thus operationalised according to the four dimensions of (1) seeking or increasing challenge demands; (2) seeking and increasing job resources and modifying the relational boundaries of the job; (3) reducing and crafting hindrance job demands (see section 3.2.2.1 for more information); (4) modify the cognitive boundaries of the job. To contribute to the job crafting literature and further test the impact of variables such as P-J fit, coping efficacy and meaning at work (as suggested by Kooij et al., 2017; Tims et al., 2016; Wrzesniewski et al., 2013) on job re-design, the following research questions and hypotheses are set:

5. To what extent does an intervention in which job crafting is operationalised according to the new definition improve the employees' perceived quality of job characteristics, P-J fit, coping efficacy[10], meaning at work, and well-being?

Because, as discussed in section 2.2.2.1., more research is needed to establish the long-term effectiveness of job crafting interventions using well-powered designs:

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[10] As discussed in Section 3.2.3., coping efficacy also involves the ability to progress towards goals despite hindrances.

6. To what extent are the beneficial effects of a job crafting intervention sustained over time, and do beneficial outcomes emerge in an intervention study employing a large sample?

2.2.4. Hypotheses 1 to 3b

For the reasons discussed in this chapter, and in line with the general conceptual model shown in Figure 3, I hypothesise that:

- **H1**. Employees participating in the job crafting intervention will report higher levels of job crafting activity, perceived quality of the job characteristics, perceived P-J fit, coping efficacy (and goal achievement), meaning at work, job satisfaction and well-being compared to workers in the control group.

- **H2.** Higher levels of job crafting activity will positively relate to P-J fit, coping efficacy and meaning at work.

- **H3.** P-J fit mediates the positive relationship between job crafting on the one hand, and H3i) meaning, H3ii) coping efficacy, H3iii) job satisfaction and H3iv) well-being on the other hand (both, P-J fit, and coping efficacy are expected to boost meaning).

- **H3a.** Meaning at work mediates the positive relationship between P-J fit and well-being.

- **H3b** Coping efficacy mediates the positive relationship between P-J fit and well-being.

This said, from the discussion above, it emerges that regardless of the specific definition of job crafting, contextual factors might influence its implementation and outcomes. Line managers' actions, attitudes, and behaviour, in particular, appear pivotal in determining the breadth, space, and motivation employees have to craft their job demands and their jobs in general (Berg et al., 2013; Gordon et al., 2018; Thun & Bakker, 2018; Tims et al., 2013). As emerged from Slemp et al. (2015), Tims et al. (2013), Daniels et al. (2017), Thun and Bakker

(2018), Kim and Beehr (2019), and Fong et al. (2020), management development might be critical to ensure managers have positive attitudes (e.g., provide greater autonomy to workers) towards job crafting and facilitate the job crafting intervention.

2.3. Job crafting, well-being, and management development

A significant number of studies (albeit not all) have found a positive relationship between job crafting, or specific dimensions of job crafting, and well-being using either the conceptualisation of Wrzesniewski and Dutton (e.g., Slemp et al., 2015; Slemp & Vella-Brodrick, 2013, 2014) or following Tims and Bakker's conceptualisation (e.g., Bakker et al., 2012; Dubbelt et al., 2019; Gordon et al., 2018; Nielsen & Abildgaard, 2012; Tims et al., 2013). Nevertheless, from longitudinal or intervention studies, systematic reviews (and according to theoretical reasons), it emerges that job crafting interventions might need some form of augmentation to have reliable effects on well-being and that combination between top-down and bottom-up elements might be needed towards this end (see below).

Gordon et al. (2018), for instance, found that (JD-R based) job crafting behaviours contributed to increasing some indicators of well-being among nurses and medical specialists. Nevertheless, only certain crafting activities increased well-being in one group or the other (seeking resources was important for nurses' work engagement, whereas seeking challenges emerged as important for medical specialists). More research is needed to determine why other crafting behaviours did not affect well-being in specific groups and what can be done to maximise the results of the job crafting intervention. For instance, the intervention was related to an increase in the job crafting strategy of reducing demands in the experimental groups. However, reducing demands did not mediate the positive relationship between the intervention and well-being, as Gordon et al. (2018) expected based on (some) previous findings. Instead,

reducing demands was associated with a decrease in well-being[11]. This finding may suggest that the job crafting efforts of employees to reduce demands were unsuccessful or constrained (Gordon et al., 2018). Similarly, Demerouti et al. (2017) found that participants in a job crafting intervention reported an increase in decreasing demands. Reducing demands, however, negatively related to performance. Can contextual factors (i.e., managers discourage or react negatively to a decrease in demands; Fong et al., 2020) be accounted as responsible for these findings? And could a top-down intervention facilitate (as suggested by Tims et al., 2013) a reduction in job demands (which lead to positive and not negative outcomes) and augment the bottom-up intervention?

As Gordon et al. (2018) argue, in agreement with the findings discussed earlier (i.e., Fong et al., 2020), employees might reconsider reducing demands as a coping strategy if managers (the organisational culture or co-workers) do not support this (p. 111). This conclusion indicates that, potentially, tailored management development (ensuring managers understand and assist job crafting) might have facilitated a reduction in demands and boosted the interventions (Fong et al., 2020; Kim & Beehr, 2019).

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[11] A substantial amount of literature (but not all) suggests that reducing hindrance demands, as an avoidant coping strategy, may negatively affect well-being (Zhang & Parker, 2019). However, recent evidence (i.e., Petrou & Xanthopoulou, 2020) suggests that avoidant (i.e., reducing demands) and approach-oriented (i.e., increasing resources) job crafting interact to determine the (positive versus negative) outcomes of specific job crafting strategies. More specifically, the interaction between avoidant and approach crafting seems to boost positive outcomes such that avoidant job crafting at a high level of approach crafting relates positively to outcomes such as performance (Petrou & Xanthopoulou, 2020). Therefore, further research is needed to understand under what circumstances reducing demands determines negative versus positive outcomes. Petrou and Xanthopoulou (2020) indicated that interventions should aim to increase both types of job crafting strategies to ensure that specific job crafting behaviours are not counter-productive.

Similarly, van den Heuvel et al. (2015), Van Wingerden, Bakker, et al. (2017a, b); Kooij et al. (2017) and Kuijpers et al.'s (2020) quasi-experimental studies (amongst others that only found limited or no support for the effectiveness of the interventions on job crafting behaviours and other outcomes) and Tims and colleagues' (2013) longitudinal study suggest that job crafting might need some form of augmentation (and some management development) to maximise its effects. For instance, in Tims and colleagues' (2013) study, crafting hindrance or challenge demands did not affect the level of demands experienced by employees, and crafting hindrance demands was not related to increases in well-being. Tims et al. (2013) suggest that managers should facilitate job crafting interventions and support and encourage a reduction in hindrance demands, considered that workers craft these less often than their job resources. Nevertheless, this is only possible if managers understand the need for job crafting and provide the autonomy employees need in this context (Kim & Beehr, 2019; Slemp et al., 2015; Tims et al., 2013). As Tims et al. (2013) conclude, in agreement with Geldenhuys et al. (2020) and Thun and Bakker (2018), to create the most optimal work environment, the interplay between managerial (i.e., top-down) and employee (i.e., bottom-up) interventions needs to be considered. This conclusion is in line with the findings of Tafvelin and colleagues (2018), according to which management interventions directed at improving the managers' supportive behaviours can be beneficial to enhance the employees' perception of climate for innovation (i.e., organisational support for proactive and innovative behaviours such as job crafting). It is also in line with Daniels et al. (2017), according to whom some level of (top-down) management development might be necessary to facilitate and augment (bottom-up) job re-design.

Management development refers to training managers to support (and improve) employees' well-being, the enhancement of workers' job design, and to facilitate (and do not

undermine) the job re-design efforts. The following theoretical arguments, along with the studies

cited earlier (i.e., Fong et al., 2020; Gordon et al., 2018; Kim & Beehr, 2019; Slemp et al., 2015;

Tafvelin et al., 2018; Thun & Bakker, 2018; Tims et al., 2013), support the conclusion that

management development, as defined, might be a necessary form of augmentation of job crafting

interventions to ensure managers facilitate and do not constrain job re-design.

I already mentioned, in previous chapters, several reasons to support this statement. For

example, the redistribution of power might be perceived as a threat for managers who might

constrain employees' proactive behaviours. Managers' attitudes (e.g., monitoring behaviours)

can either undermine or facilitate job crafting. Managers can determine the number of resources

and demands that employees have and influence their motivation (and ability) to craft their jobs.

There are other reasons too. According to the socio-technical design principles, because the work

of both workers and line managers can be affected by job re-design (due to the reciprocal and

dynamic nature of this; Grant & Parker, 2009), both should be involved in the re-design of jobs

(Daniels et al., 2017). According to the same principles, job re-design should be aligned (and

compatible) with other employment practices that have a bearing on workers' behaviours and

goals (Daniels et al., 2018). Lacking integration job re-design might not have an effect or might

even be counter-productive (Daniels et al., 2017). It is difficult to imagine something in the

organisational context that has a more incisive influence on employees' behaviours and goals

than their line managers (see Mullins & Christy, 2016).

Managers shape workers' perceived and actual work environment (Biggs et al., 2014; Ho

& Astakhova, 2020; Nielsen et al., 2008), have a major influence on the way in which employees

think about (and experience) their jobs (Gilbreath & Benson, 2004; Ho & Astakhova, 2020;

Mullins & Christy, 2016), and play a vital role for employees' well-being, attendance,

motivation, work engagement, and performance (CIPD, 2018, 2020; DuBrin, 2013; HSE, 2017, 2020; Sparks et al., 2001). In brief, managers interpret a crucial role in determining several behavioural, attitudinal, and health outcomes in employees and do have a bearing on workers' behaviours, attitudes, goals, and well-being (CIPD, 2018, 2020; Gonzalez-Morales et al., 2018; Mullins & Christy, 2016; Nielsen, 2013). As indicated by Nielsen (2013), line managers can either make or break an intervention due to their influence on employees' attitudes and behaviours.

Therefore, management development should not be overlooked in job re-design interventions to ensure compatibility between bottom-up (job re-design) and contextual psychosocial factors (i.e., top-down management practices) that have a bearing on workers' behaviours and goals. I argue that for a (bottom-up) job-redesign intervention to improve well-being, it is pivotal to implement some management development (top-down element) to ensure that the managers' behaviours and attitudes are aligned with the work re-design intervention's scope. This conclusion is in agreement with Daniels et al. (2017), Griffin et al. (2001), the CIPD (2018), and in line with the findings discussed earlier (Fong et al., 2020; Kim & Beehr, 2019; Slemp et al. 2015; Tafvelin et al., 2018; Thun & Bakker, 2018).

Nevertheless, the literature does not provide clear answers on how (or what) leadership training can be used to improve the quality of employees' jobs (Daniels et al., 2017) and facilitate a work re-design intervention and employees' well-being. The studies which focused on training managers to improve the quality of workers' jobs not only had a top-down only focus but used all different methods of management development (e.g., Biggs et al., 2014; Elo et al., 2014; Odle-Dusseau et al., 2016). More research is needed to determine not only to what extent management development impacts the outcome of a job re-design intervention but also what type

of management development, specifically, can enhance a job re-design intervention and positively impact employees' well-being.

To address this gap in the literature, I argue that management training in social skills and job design-related knowledge augments the positive effects of a job re-design intervention for the reasons highlighted in the next chapter.

2.4. Management (social skills and job design related knowledge) training to boost well-being and job crafting: Hypotheses 4, 5, 6

A substantial amount of literature suggests that social and emotional abilities are pivotal for effective management and are associated with outstanding leadership performance (Cherniss et al., 2010; Riggio & Reichard, 2008; Rizwan & Serbaya, 2019). According to Ferris and colleagues (2001), social skills involve "interpersonal perceptiveness and the capacity to adjust one's behaviour to different situational demands and to effectively influence and control the responses of others" (p. 1076). Strong social skills are necessary to manage conflict in groups, coordinate work, and work cooperatively with others (Morgeson et al., 2005).

In a context of work made of interdependent behaviours (Grant & Parker, 2009) and where behavioural clues from significant others (i.e., line manager) shape the individuals' attitudes at work (Ho & Astakhova, 2020; Piccolo et al., 2010), strong social skills are crucial for effective management (Pichler & Beenen, 2018). Social skills training might help managers understand how their own behaviours elicit a given, undesirable response and what can be done to improve the problem (Hayes, 2002). It might help them to perceive more accurately others' emotions, traits, intentions, and motives (Baron & Markman, 2000). Social skills training can help managers provide better supervisory support (by understanding employees' needs and preferences) and improving relationships with employees (Riggio & Reichard, 2008). It might

help them regulate negative emotions, inspire employees, coach them, transmit positive affect

and regard (Riggio & Reichard, 2008). Crucially, social and emotional competencies in

managers emerged as related to employees' health, stress levels, job satisfaction, and

productivity (Rizwan & Serbaya, 2019).

Overall, interpersonal skills training would benefit many managers and help them

improve their relationship with subordinates (Jex, 1998; Spark et al., 2001). Unsurprisingly,

previous research has shown a positive relationship between social and emotional competencies

and management effectiveness (Cherniss et al., 2010; Hoffman & Tadelis, 2018; see also Thun &

Bakker, 2018) and success (Dierdorff et al., 2009; Van Velsor & Leslie, 1995). Nevertheless,

despite the significance of managers' social skills in the workplace and the potential value of

social skills training for managers, research on the impact of management social skills training

on employees' well-being is scarce (Bambacas & Patrickson, 2008; Cherniss et al., 2010; Riggio

et al., 2020) making further evidence needed.

I expect that management training in social skills (and job design-related knowledge) will

independently enhance workers' well-being as well as facilitate job crafting and the job crafting

intervention in several ways.

An independent effect on employees' well-being is anticipated because:

1) The training (see section 3.2.2.2.) should help managers provide better social and

supervisory support (by improving the awareness of their own behaviours and more

accurately assessing employees' needs). The enhanced supervisory support is

expected to positively impact employees' well-being (Bakker & Schaufeli, 2008;

CIPD, 2018; Fukui et al., 2019; Sarti, 2014).

2) By assisting managers in assessing the employees' needs more accurately, the training is expected to enhance job resources such as autonomy and control, essential for workers' well-being (Parker, 2014).

3) Improved social skills might lead to enhanced relationships with employees, improved managers' coaching skills and ability to transmit positive regards and affect (Riggio & Reichard, 2008). As emerged from Biggs et al. (2014), these elements might enhance employees' perceived work characteristics (job demands, supportive leadership) and thus well-being. Moreover, managers' supportive behaviours (i.e., individual consideration) help employees deal with their job demands (Bakker & Demerouti, 2018).

The management training is also expected to augment the bottom-up job crafting because:

1) By assisting managers to assess more accurately the employees' needs, the training should enhance resources such as autonomy and control, which can facilitate job crafting (Slemp et al., 2015; see also; Kim & Beehr, 2019; Tafvelin et al., 2018; Thun & Bakker, 2018).

2) The improved work characteristics should translate into augmented levels of resources (i.e., social support, autonomy) that employees have to craft and boost job crafting and the job crafting intervention because employees will be trained in using those resources for specific purposes (Daniels et al., 2018).

3) Improved social skills and job design-related knowledge (i.e., managers learn about the features that make quality jobs and plan to implement this knowledge to enhance the quality of employees' jobs) are expected to foster aspects like psychological

empowerment in employees, as well as their autonomy and control over daily work decisions (Ogbonnaya & Daniels, 2017; see also intervention details in section 3.2.2.2.). As seen above, leaders who empower their employees facilitate job crafting (Kim & Beehr, 2019; Thun and Bakker, 2018). Moreover, in agreement with the self-determination theory (Gagné & Deci, 2005), managers' interpersonal skills can facilitate intrinsic motivation in employees, which, in turn, encourages proactivity (Thun & Bakker, 2018). Job-design related knowledge (e.g., an introduction to job crafting and its benefit) is also expected to assist managers in supporting a wider range of job crafting strategies in employees, which are not limited to increasing resources but involve also crafting job demands. Considering Fong et al. (2020) findings (discussed earlier), managers do need to understand the value of demands crafting to enable the latter and not react negatively to demands crafting.

4) In agreement with Tafvelin et al. (2018), the training is expected to enhance the perceived levels of supervisory support in employees and, in turn, have a positive impact on employees' motivation and ability to engage in proactive behaviours. Tafvelin and colleagues (2018) found that an intervention directed at improving managers' supportive behaviours (by enhancing coaching, relational, and communication skills) enhanced the employees' perceived climate for innovation (defined earlier). Enhanced relational and coaching skills in managers, indeed, have a positive impact on employees' job crafting (Jiang et al., 2020; Petrou et al., 2015; Wang et al., 2017).

Management training in job-design related knowledge is also expected to further enhance employees' well-being by ensuring that managers gain a better understanding of the elements

making quality jobs and the benefit of the latter (Ogbonnaya & Daniels, 2017), and support a

working context in which these elements are enacted. It is also expected to facilitate job crafting

and the job crafting intervention by ensuring that managers gain a better understanding of the

dynamics (i.e., antecedents, consequences, redistribution of power) and benefits of job re-design,

and the possible impact of their behaviours and attitudes (e.g., autonomy support) over its

success or failure (Fong et al., 2020; Slemp et al., 2015; Solberg & Wong, 2016).

Conceptually, for the reasons highlighted above, the (top-down) management

development intervention is expected to have a twofold effect (see Figures 4 and 5). First, it

should independently positively impact workers' well-being (and job satisfaction) by facilitating

job crafting, and job crafting-related outcomes (see section 2.3. above), while simultaneously

improving the quality of supervisory support. This will be tested through an intervention with a

top-down element only.

Figure 4

Conceptual map of the mechanisms through which a top-down intervention directed at improving the quality of workers' jobs enhances employees' well-being
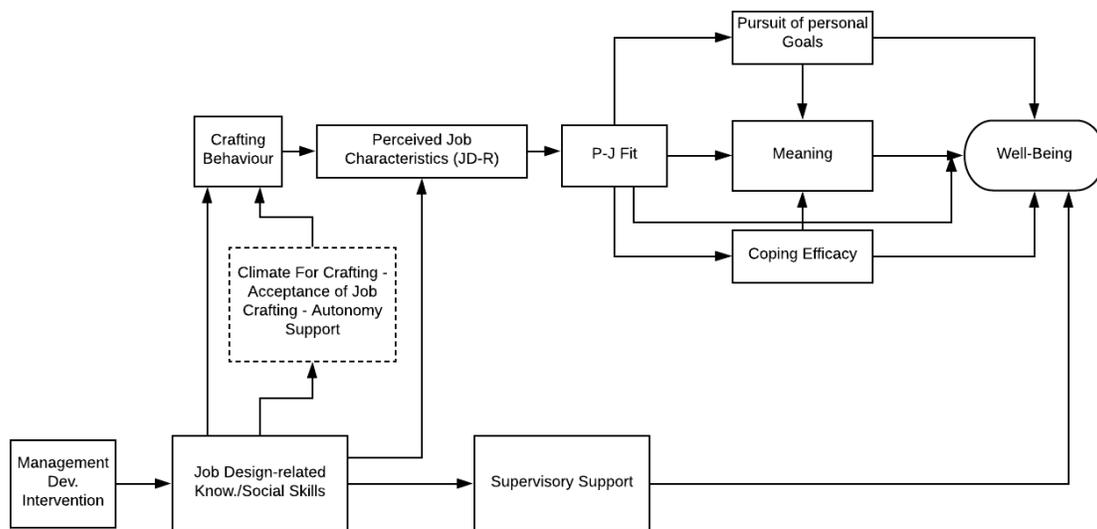
- **H4:** Employees whose managers participated in the management development intervention will report higher levels of job crafting, and in turn, of a) perceived job characteristics, b) P-J fit, c) coping efficacy, d) meaning at work, e) job satisfaction, and f) well-being compared to employees whose managers were in the control group.

Second, management development is expected to augment the positive effects of a job crafting intervention (Figure 5) by ensuring that (1) (top-down) management practices are aligned with the scope of (bottom-up) job crafting; (2) that managers provide a context supportive for job crafting; and (3) by enhancing the job characteristics (resources/demands) available for employees to craft.

Figure 5

The general model of the mechanisms through which (top-down) management development boosts the positive effects of (bottom-up) job crafting on well-being
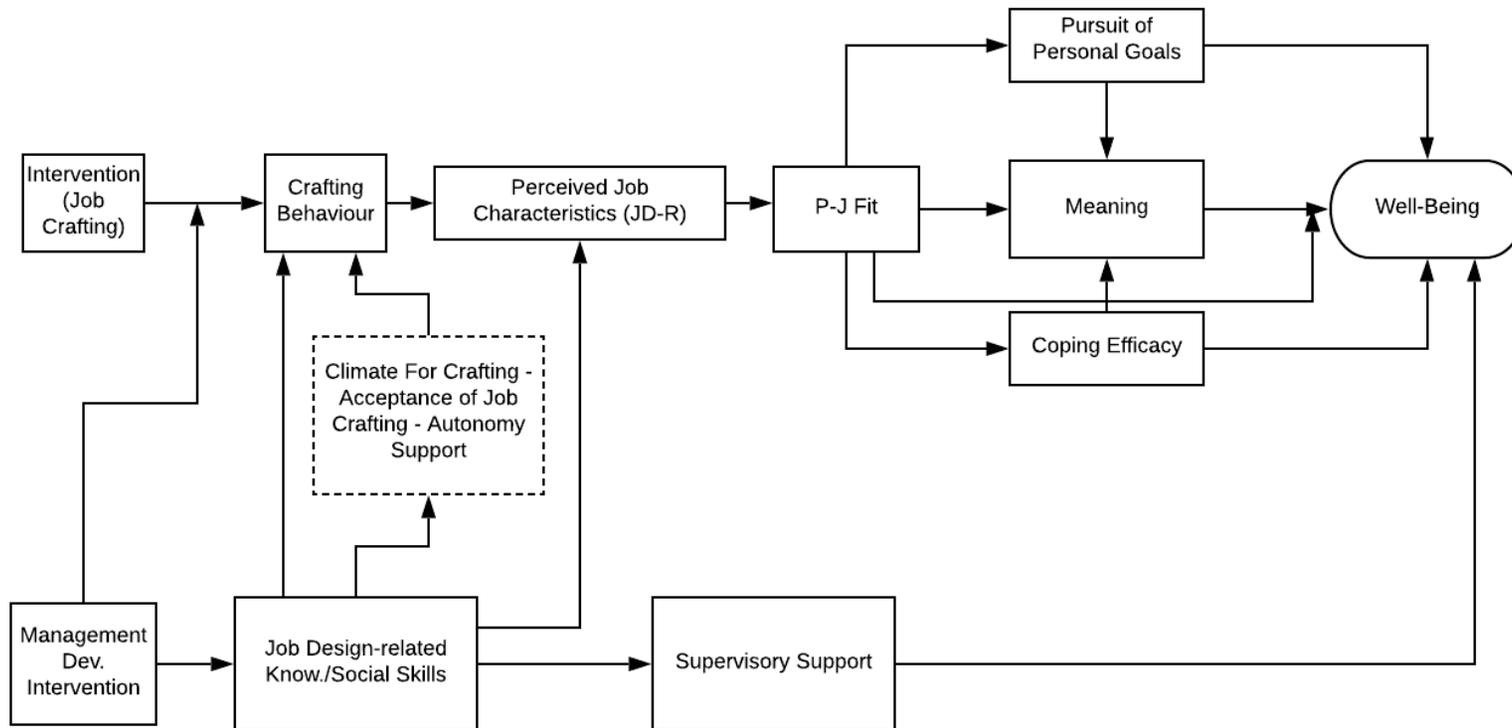
The top-down intervention is expected to improve the employees' perceived climate for

crafting/innovation and autonomy support (in line with Tafvelin et al., 2018 and as discussed

above). Elements which, in turn, facilitate their crafting activity (e.g., making it easier to pursue

the job crafting goals planned through the bottom-up training) and boost the latter's outcomes

(e.g., Kim & Beehr, 2019; Slemp et al. 2015). By enhancing the employees' job characteristics,

the top-down intervention will also provide more extensive space for employees to craft job

resources and demands according to their needs and preferences; thus, further boosting P-J fit

and meaning at work in the context of job crafting. At the same time, bottom-up job crafting will

ensure that employees are trained in using the job characteristics enhanced from the top-down

intervention for the purpose of improving P-J fit, meaning at work, and well-being:

- **H5.** Management development as training in social skills and job design-related

  knowledge moderates the positive effect of a job re-design (job crafting)

  intervention on job crafting and, in turn, well-being such that the effects of a job

  crafting intervention on employees' job crafting and well-being are stronger when

  the managers have received the training.

In conclusion, I argue that the integrated intervention (i.e., an intervention where there is

an interaction between top-down and bottom-up elements) will show more substantial effects on

employees' well-being than the bottom-up and top-down interventions solely. This because the

integration of top-down and bottom-up elements will ensure that the intervention acknowledges

the dynamic and reciprocal nature of job re-design between managers and employees (Clegg &

Spencer, 2007; Daniels et al. 2017; Grant & Parker, 2009), involves the actors mostly affected by

job re-design, and ensures compatibility between the scope of the intervention (well-being), top-

down and bottom-up influences, as well as between the re-design of jobs and the existing

organizational processes (i.e., power dynamics; Cherns 1987; Daniels et al., 2017). While

management development is expected to boost the effects of job crafting, the latter is expected to

enhance the workers' ability to use the resources available (i.e. social support) for specific

purposes.

- **H6.** Employees participating in the intervention combining top-down and bottom-
  up elements will report higher levels of job crafting and, in turn, job
  characteristics, P-J fit, meaning at work, coping efficacy, and well-being
  compared to workers in control and other intervention groups (i.e., the moderated
  effects of an integrated, top-down and bottom-up intervention, are mediated via
  job crafting in line with the general model shown in Figure 5).

2.5. A note on well-being

Well-being is, undeniably, a complex concept that has eluded researchers for decades

(Dodge et al., 2012). Despite a growing number of instruments to measure well-being, there is no

consensus in the literature over its definition, dimensions, and operationalisation (Linton et al.,

2016). This said, it seems clear that well-being is not a single, unitary entity (Diener et al., 2017).

Instead, it emerges as a multilevel (Russell & Daniels, 2018) multi-facets entity (Diener et al.,

2017). It can be seen as a state (Dodge et al., 2012), as a multi-dimensional construct (Linton et

al., 2016; Seligman, 2012), or as both a state and a construct (Russell & Daniels, 2018).

Considered the broadness of its entity (Diener et al., 2017), most job design research that

operationalised well-being as work engagement, burnout, exhaustion, or strain (Nielsen &

Abildgaard, 2012; Tims et al., 2013; Gordon et al., 2018) arguably failed to capture the

relationship between job re-design and well-being in its entirety (see below).

Diener and colleagues (2017) define subjective well-being (SWB) as "people's overall evaluations of their lives and their emotional experiences" (p. 3). According to this definition, SWB is made of the individuals' appraisal of the quality of certain aspects of life (e.g., life/job satisfaction) as well as of the emotions (positive/negative affect) that determine their reactions to life events (Diener et al., 2017). SWB can be seen as a subdimension of the broader construct of psychological well-being (PWB; although confusion can be found in the literature about the definition of the two terms, Linton et al., 2016). As indicated by Daniels et al. (2018), PWB is held to have two main components. One is on SWB, which refers to the subjective assessment of life satisfaction and the experience of positive versus negative affect. The other component is referred to as eudaimonic well-being. The latter refers to psychological functioning (Tennant et al., 2007) and the ability to "live well" by establishing positive relationships with others, having feelings of mastery, autonomy, self-acceptance, and purpose in life (Daniels et al. 2018). Both SWB and eudaimonic well-being have different sub-dimensions. For instance, hedonic tone (a subdimension of SWB, which refers to one's typical affect) is made of two dimensions. One differentiates between positive or negative affect (i.e., whether an individual, in general, perceive more positive or negative emotions), while the other reflects the intensity of these emotions (Cropanzano et al., 2003). Overall, PWB can be seen (1) as comprising cognitive, behavioural, and affective components (Diener et al., 2018; Russell & Daniels, 2018). (2) As having subjective (SWB) and eudaimonic well-being components (Diener et al., 2018). And (3) as being both a construct and a state according to whether the focus is on emotions related to specific or temporally close events and experiences, on a more general evaluation of life, or on typical (e.g., trait-related) affect (Diener et al., 2018; Russell & Daniels, 2018).

Considered its complex, multi-facets and multi-level nature, great care should be taken when measuring PWB to conclude that PWB has been measured. Intervention studies in which work engagement or job satisfaction only have been measured cannot generalize their findings, concluding that the intervention did or did not improve well-being. As indicated by Diener and colleagues (2018), cognitive, judgment-focused evaluations like satisfaction with one's job or life might be affected by biases because people might find it challenging to evaluate their job (or life) as a whole or aggregating emotional experience. Similarly, affective evaluations might be biased by circumstantial factors and may not reflect an overall evaluation of life or the job. Briefly, well-being should be assessed holistically using multiple indicators (Diener et al., 2017). In particular, researchers should include both affective measures (i.e., hedonic tone and intensity of emotions) as well as judgment-focused measures (e.g., job satisfaction; Diener et al., 2018). For instance, affective well-being should not be ignored, considered its positive relationship with constructs such as burnout (Russell & Daniels, 2018).

The present study aims to evaluate the effects of the interventions on different dimensions of well-being, and in this way, contribute with more robust evidence on the effect of job re-design on well-being. Namely, distinct measures will be used to assess the affective component of well-being (Daniels, 2000), the cognitive, judgment-focused dimension (job satisfaction), as well as a eudaimonic component (meaningfulness).

Chapter 3 Methodology

3. Methodology

This chapter presents the methodological approach and research strategy of the thesis and is structured as follows. Sections 3.1. to 3.1.4. introduce the philosophical stance of the thesis and aim to justify the research approach and methods used. Specifically, following a discussion on critical methodologies and the challenges of drawing solid links between the latter and applied research, a rationale is provided for adopting a pluralistic ('realist-lite') approach to methodology (sections 3.1 to 3.1.3.). Subsequently (section 3.1.4.), it follows a discussion on validity and reliability in the context of (quasi)-experimentation and how the present research aimed to use robust methods to ensure the findings and conclusions are accurate and generalisable. Section 3.2. introduces Study's 1 method, including participants and procedures, participants' flow, demographic data, research context, interventions design, measures, and analyses. The design and structure of the interventions are presented in the context of the most extensive Study 1. Accordingly, sections 3.2.2.1 and 3.2.2.2. provide an in-depth discussion about the ideation, theoretical rationale, structure, and procedures of the job crafting and management development interventions, respectively. Because the interventions' ideation and design represent a significant and original contribution of the thesis, several sections have been devoted to describing the interventions. It follows that sections 3.2.2.1 and 3.2.2.2. are more extensive than the other sections in this chapter. Finally, section 3.3. introduces Study's 2 method, including participants and participants flow, procedures and research context, demographic data, interventions, measures, and analyses.

3.1. Research approach and methodological considerations

The following section aims to provide an overview of the thesis' ontological and epistemological[12] position. Establishing a definite philosophical position in a study in the social sciences, however, is not a straightforward task. Philosophical and epistemological disagreements about philosophies, methodologies, definitions, and labels are common (Saunders et al., 2019). There is no one "best" philosophy in the business and management field (Saunders et al., 2019), and antagonisms about the suitable methodology to follow, the ontology and epistemology behind science (and reality) exist even under the same philosophical spectrum (e.g., critical realism; see below).

3.1.1. The gap between critical methodologies and the practice of social research

Researchers in the business and management field are encouraged to provide a philosophical-methodological justification that informs a coherent practice and the pursuit of a cohesive set of steps through the research (e.g., the research onion; Figure 6; Saunders et al., 2019). Unfortunately, while theoretically, it would be sensible to stand research onto a straightforward epistemological platform, philosophically and pragmatically, it is almost impossible to draw a well-defined, indisputable connection between critical methodologies and applied research. A significant gap exists between the philosophy of science and the practice of social research (Pascale, 2011). As discussed below, the boundaries between one philosophy and another are blurred. The epistemology behind a specific philosophical position (e.g., critical realism) is not clearly established or agreed upon. The methods that are favourable, acceptable,

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[12] Ontology refers to assumptions, beliefs, and presuppositions about reality's nature (Saunders et al., 2019). Epistemology refers to assumptions about knowledge, about what represents valid, justifiable, and acceptable knowledge and how knowledge can be shared with others (Saunders et al., 2019).

justifiable according to that particular philosophy are not unequivocally shared. Moreover,

blindly adopting a specific philosophical position (e.g., positivism) can lead to striking

contradictions in the practice of social research. In other words, researchers face uncharted and

turbulent territories when establishing the epistemological/ontological position of a study and

could easily fall into unsettled methodological fallacies or disputes.

Figure 6

The Research Onion (adapted from Saunders et al., 2019, p. 130)
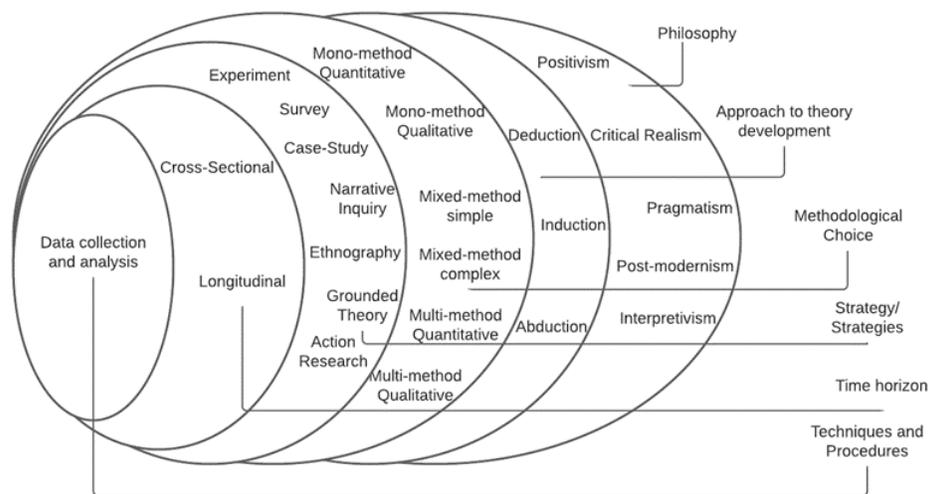
3.1.2. Realism, Positivism, and social research

It would seem sensible to stand research made in the field, and that involves real-world

interventions, on a realist ontology. Realism, which broadly speaking refers to real-world

research (Robson & McCartan, 2015), provides a useful language to answer how and why

questions, and it gives a useful epistemological basis of approaching research made in the 'field'

rather than in laboratories (Robson & McCartan, 2015). Unfortunately, researchers labelling a

study generically as 'realist' would provide little insight into their research's

epistemological/ontological position. They could attract criticisms for adopting a broad-brush

philosophical approach. Realism, indeed, can be a vague term and a broad category (Pawson, 2013; Robson & McCartan, 2015). 'Scientific realism', 'critical realism', 'transcendental realism', 'subtle realism', 'fallibilistic realism', 'realist evaluation' (amongst other terms), each underlining similarities but also particular subtle features (Robson & McCartan, 2015). Each term identifies a particular branch of realism that shows similarities and differences with the other branches and different philosophies.

For instance, realist evaluation (Pawson, 2013) is informed by (and spawned from) a critical realist research paradigm (Haigh et al., 2019; Porter, 2015), with the differences between the two not being meaningful (Porter, 2015). Critical realism or realist evaluation share apparent similarities with pragmatism (see Kelemen & Rumens 2008; Pawson, 2013; Porter, 2015; Robson & McCartan, 2015) among which an interest in understanding – 'what works for whom in what circumstances' (Kelemen & Rumens 2008; Pawson, 2013; see the first for an extensive review of pragmatism). Scientific realism (closely related to the positivist philosophy; Saunders et al., 2019) and critical realism (often referred to as post-positivism; Pascale, 2011) are themselves closely related (Nash, 2005). Ontologically, realism embraces objectivism (Saunders et al., 2019). Indeed, in "its most extreme form, [realism] considers social entities to be like physical entities of the natural world" (Saunders et al., 2019, p. 135). Objectivism and positivism are arguably indistinguishable. Both stand on the ontological position that only observable phenomena exist, and abstract, hypothetical entities (as seen by social actors) cannot be tested empirically (Robson & McCartan, 2015; Saunders et al., 2019). In agreement with the natural sciences' assumptions, both assume that the social reality researchers investigate is external to us (social actors) and that there is one, objective, actual reality (universalism; Saunders et al., 2019).

Therefore, positivism and objectivism are ontologically indistinguishable even if their etymology might differ. Indeed, the two terms are often used to refer to the same philosophical paradigm (e.g., Al-Saadi, 2014; Dudovskiy, 2019). Since, ontologically, realism embraces objectivism, particularly in its most extreme forms (Saunders et al., 2019), the distinction between positivism (objectivism) and realism (broadly) is not clear-cut. Similarly, the distinction between positivism and post-positivism (aka critical realism) is not clear-cut as both share the same underlying objectivist epistemology (Stordy, 2012). Not surprisingly, the realist's perspective on experimental designs bears "more than a passing resemblance to traditional positivist-based experimental and non-experimental designs" (Robson & McCartan, 2015, p. 121). Researchers labelling research generically as a realist (or positivist) would have a hard time defending a coherent and orthodox epistemological approach. As introduced above, realism is a broad term (Pawson, 2013). Positivism, on the other hand, counts as many as 12 varieties (Saunders et al., 2019). Confusingly, disagreements exist even within the same specific movement.

For example, exponents of critical realism (or of the closely related realist evaluation; Porter, 2015) have conflicting positions about the adequacy of quantitative statistical approaches as a method of inquiry (Nash, 2005; Pawson, 2013). These contradictory positions create an inevitable confusion about what epistemology reflects critical realism and what methodology is or is not acceptable for a critical realist. Overall, there is a general agreement among critical realists about the complex structure of reality, its multi-layered and structured ontology which cannot be limited to observable phenomena but involves underlying structures that determine what we observe (Saunders et al., 2019). There is agreement about the causal power possessed by the entities of the world (Nash, 2005). There is no agreement, however, about the specific

epistemological reality of the social world or about the favourable methods to research and

investigate this multi-layered reality (Nash, 2005). According to Bhaskar (1998), the social

world is an open system 'characterized by the complete absence of laws and explanations

conforming to the positivist canon' (Archer et al., 2013, p. xv). He acknowledges, nevertheless,

the existence of a kind of systemic patterns that can be identified for the purpose of scientific

enquiries (Nash, 2005), leaving the door open to quantitative methods of analysis in agreement

with other realists (e.g., Pawson, 2013). Scott (2000), conversely, rejects quantitative methods

and statistical modelling as incompatible with an open system such as the social world (for a

detailed discussion, see Nash, 2005). In brief, it is hard to strictly follow a realist (or critical

realist) paradigm in the practice of (applied) social research since disagreements and grey areas

make it difficult to define the ontological-epistemological borders marking realism and/or

realism-related divisions.

Although it is difficult to mark clear boundaries between positivism, realism, and

objectivism (as said earlier), many argue that positivism is no longer a viable option for carrying

out real-world research (Robson & McCartan, 2015; see also Byrne, 2002; Nash, 2005; Pawson,

2013) for several reasons. Positivism denies the existence of abstract and hypothetical entities

(Robson & McCartan, 2015). It reduces social entities to mere objective, observable phenomena

(Saunders et al., 2019; Hiller, 2016) that abide to cause-effect laws and can be studied in a

values-free manner based on data and facts uninfluenced by human interpretation which uncover

universal laws by means of regularity and statistical analyses (Robson & McCartan, 2015).

Positivism ignores the complexity of social systems and their properties (e.g., the emergence of

novel components due to the combination of existing components; Pawson, 2013).

The last points are particularly relevant to the present study. This research does aim to draw robust empirical conclusions based on sound and rigorous quantitative methods (section 3.1.4.). However, it would be limiting to establish it under a 'pure' positivistic epistemology. Important methodological and practical considerations should be ignored under this philosophy (e.g., the participants' agency[13]). Ignoring aspects such as the participants' agency or the complex structure of social reality, would limit the interpretability of the findings as well as the breadth of a general research strategy (i.e., a comprehensive conceptual and statistical model) which seeks not only to (1) establish cause and effect of phenomena and events (i.e., positivism). It also aims (2) to explain how mechanisms produce events or outcomes (i.e., realism) as well as (3) to acknowledge the factors (e.g., implementation issues) encountered during the research which might have had an impact on the results (i.e., critical realism and pragmatism).

Obvious philosophical shortcomings make it difficult to apply positivism to real-world settings and to follow a (strict) positivist paradigm in social research. Observable phenomena, in complex systems, are only the detectable manifestation of underlying structures that compose a rich, multi-layered, complex reality with elements interacting at different levels and creating new elements and (often unpredictable) properties (Heng, 2008; Pawson, 2013). It is impossible to control for (and even know) every possible confounder in real-life settings (Pawson, 2013) and pretending otherwise (in real-world experimental research settings) would mean assuming that interventions are dispensed in a vacuum when they are not (Pawson, 2013). Assuming, in organisational settings, a confounders-free, laboratory-style type of environment in which

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[13] Since job crafting is agentic by its very nature, research involving job crafting cannot ignore the participants' agency. Therefore, it cannot, arguably, be established under a 'pure' positivist epistemology.

participants uniformly and passively react to the intervention's strategies, is seen as an

unattainable, unreasonable dream (Pascale, 2011; Pawson, 2013; Prasad, 2005).

3.1.3. A realist-lite, pluralistic approach to methodology

From the discussion so far, it emerges that strictly following a definitive epistemological

approach thorough research is a hard, limiting and arguably defective task (Gerring, 2001; Howe,

1988). The boundaries that separate different philosophical positions are blurred. There are

controversies about the epistemological and ontological basis of specific philosophies and

acceptable inquiry methods for one or another philosophy. Moreover, philosophical flaws exist

when considering a particular philosophy (e.g., positivism) which cannot be blindly adopted in

applied research settings. Unsurprisingly, as highlighted by Gerring (2001), with a few

exceptions, 'philosophy of science does not tell us much about how to improve work in the

social sciences, or how to distinguish good work from bad; for most of it is written at a rather

lofty ("philosophical") level' (p. 17). The lofty "philosophical" standard of most research reflects

the deep-rooted ontological and epistemological controversies in different (and the same)

philosophical positions introduced above. These controversies and grey areas make it, arguably,

unattainable to provide a unique and coherent epistemological position to real-world research.

What is seen as attainable, in the context of the present research, is to establish a rigid

protocol which does start from the positivistic assumption that there is an observable-testable

(note, not objective) reality that can be investigated by means of statistical analyses based on a

structured methodology (which ensures validity, reliability and thus facilitate replication; see

next section) without, however, ignoring or rejecting (a priori) the existence of the emergent

properties inherent to social systems (i.e., critical realism) as well as practical hindrances and

considerations (pragmatism). In other words, in agreement with Saunders et al. (2019) and with

Robson and McCartan's (2015) notion of 'realism-lite' (i.e., 'pragmatically selecting ideas and terminology from different realist approaches', p. 38), a pluralist approach is followed in this thesis. A pluralist approach, which in agreement also with pragmatism (Table 2), does not blindly abide by a "tyrant" abstract epistemology (Howe, 1988) but values the contribution of philosophies relevant to real-world research (while ensuring that conclusions are as robust as they can be).

In Table 2, the contributions of three main philosophies (positivism, critical realism, and pragmatism) to the present study are presented. Subsequently, in the next chapter, a discussion on reliability and validity in the context of real-world experimentation is provided.

Table 2

The contributions of Positivism, Critical Realism and Pragmatism to the present study

Positivism	Critical Realism	Pragmatism
• Knowledge can be gained through observation and experience (although reality cannot be limited to observable phenomena). • Constant conjunction of events exists (empirical regularities can be found where two or more elements appear related or in a sequence). • Science is mainly (but not exclusively) based on quantitative data derived from strict procedures and rules. • Hypotheses are tested against facts (empirical evidence). • Cause can be determined by demonstrating empirical regularities when strict procedures are followed (i.e., ensuring Internal Validity).	• Reality as stratified/layered. • Social systems are complex open systems. • Researchers cannot be values-free, but they can minimise bias and errors. • Emergent properties are inherent to social systems. Complexity is the norm in organisations and must be acknowledged in the context of interventions implementation. • A range of methods can be used to fit subject matter and contexts. • Interventions are not implemented in a vacuum (interventions are dispensed in a world of interventions). • Intervention participants are not passive recipients but active agents. Their interpretation of the	• Reality as complex. Processes, practices and experiences are in constant flux. • Organisations are open systems. • Dualism is rejected (e.g., facts vs values; empiricism vs rationalism, etc.). Practical focus on how well philosophical positions work in solving problems. • The physical-natural world and the emergent psychological and social world are both considered real and important. • Pluralism and eclecticism are favoured. Different and even conflicting theories and philosophies are useful to explain and understand the world.

(*Continued*)

- intervention is crucial in determining its outcomes.
- The specific circumstances (and the context) under which an intervention is implemented represent a source of complexity that cannot be controlled as contextual layers are intertwined, complex, and in motion.
- Statistical significance and quantitative analysis do not tell the whole story. Practical theorising (including qualitative notes) is necessary to understand the mechanisms through which an intervention works or does not.
- Motto: "what is it about a programme that works for whom, in what circumstances, in what respects, over which duration" (Pawson, 2013, p. 15).

- Human enquiry (in the daily interaction with the environment) is as important as scientific and experimental enquiry.
- Theories become true when they work (i.e., their predictions are verifiable and can be applied).
- Research conclusions are rarely absolute or perfect. Knowledge is tentative and changing over time.
- Endorses fallibilism. It is important to try things out to discover what works and how.
- Action over philosophising.
- A range of methods is acceptable. The emphasis being on practical outcomes and solutions.
- Reflective process of researchers is crucial.
- The observation of participants and other hands-on methods of data collection and analysis (e.g., fieldwork notes) are crucial (and seen as most effective means to) understand uncertainty and provide pragmatic solutions to problems.
- Contemporary organisations as sites of many struggles which represent a hurdle in the search for meaning at work.
- Experience is as valid as rigorous empirical methods in providing knowledge.

Note. Adapted from Robson and McCartan (2015), Saunders et al. (2019), Pawson (2013), Kelemen and Rumens (2008).

3.1.4. Experiments, validity, and reliability

Aside from the (mainly) abstract discussion of which philosophical position underlies given research, it is crucial to ensure that the results obtained are generalisable and accurate (i.e., valid and reliable; Cook et al., 1990; Robson & McCartan, 2015). Validity and reliability are the fundamental, critical components in determining the value of research (Robson & McCartan, 2015). Namely, it is crucial to use, in research, rigorous methods that ensure that the findings discovered and the conclusions drawn reflect a generalisable reality that can inform future research and can be of practical and theoretical use. Experiments (defined as vehicles for testing causal hypotheses; Cook et al., 1990) are often viewed as the gold standard for carrying out rigorous research and draw robust, unbiased, (causal), conclusions (Saunders et al., 2019). Unfortunately, a trade-off is often encountered in real-world research between internal validity (a causal relationship between a treatment and an outcome can be established) and external validity (i.e., generalisation) when implementing experiments. Theoretically, randomised controlled trials (RCTs)[14] in a strictly controlled environment are considered the 'gold standard' as they ensure high internal validity levels (Robson & McCartan, 2015). Indeed, the best way to minimise internal validity threats is to randomly allocate participants to either an experimental or a control condition, measure them on different occasions, and control for possible confounders (see below and Cook et al., 1990).

According to Shadish and colleagues (2002), a causal relationship exists if (1) the cause (e.g., experimental manipulation) precedes the effect; (2) the cause is related to the effect (i.e., share variation); (3) different plausible alternative explanations cannot be found other than the

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[14] In RCTs, participants are randomly allocated to either a control or experimental group.

cause (i.e., the researcher applies specific methods to ensure other causes for the effect are ruled out). An RCT in a laboratory setting offers the best means to establish causation as (1) the experimenter can ensure that the stimulus precedes the effect. (2) Cause and effect are more likely to share variation because it is easier to establish the same stimulus to participants (as well as because it is more likely to have groups that are more similar to each other on average when the allocation of participants is random; thus, minimising internal validity threats such as maturation; see below). (3) Plausible alternative explanations other than the experimental stimulus can be ruled out with more confidence (there is a high degree of control, and random irrelevancies in the setting do not affect statistical conclusion validity; Cook et al., 1990). The necessary artificiality of RCTs in laboratory settings, however, limit their value (Robson & McCartan, 2015) given that results/conclusions can rarely be generalised to real-world settings (i.e., lack external validity).

As an alternative to laboratories, RCTs or quasi-experiments (random allocation of participants is not possible) can also be implemented in organisational settings to gain more generalisable, applicable findings as long as steps are taken to deal with threats to internal validity (Table 3) and maximise the validity of a study (Cook et al., 1990).

Table 3

Summary of threats to internal validity (adapted from Cook et al., 1990; Robson & McCartan, 2015)

Threats to Internal Validity	
• **History**	The relationship between the presumed cause (i.e., experimental manipulation) and the effect (i.e., outcome) might be due to events that took place between the pre-test and the post-test (e.g., Coronavirus crisis and shift to remote working).
• **Maturation**	The relationship might be due to development, growth or change in participants that is not due to the treatment (e.g., evaluating athletic skills in teenagers in development phase).

(*Continued*)

• **Testing**	The relationship might be due to participants taking the test different times (e.g., the first test makes participants reflect or look the answers).
• **Instrumentation**	The relationship might be due to the measuring instrument change between pre-test and post-test.
• **Statistical regression**	The relationship might be due to participants being chosen because of atypical or unusual characteristics (e.g., high performance) with these characteristics moving towards the mean over time (i.e., declining).
• **Selection**	The relationship might be due to initial pre-existing differences between groups (e.g., organising groups based on age).
• **Mortality**	The relationship might be due to participants with specific attributes dropping out (e.g., in a study of math capacities selective dropout of people making little progress).
• **Selection by maturation interaction**	The relationship might be due to groups growing apart because composed of different types of person on average (e.g., boys and girls in a fitness programme initially matched on physical strength).
• **Ambiguity about causal direction**	It is not possible to establish whether A cause B or vice-versa (this threat being more salient to correlational, cross-sectional studies).
• **Diffusion of treatment**	The relationship might be due to elements of one group (e.g., control) inadvertently receiving aspects of the intervention intended only for another group (e.g., experimental).
• **Compensatory equalisation of treatments**	The relationship might be due to one group receiving special treatment and pressures (e.g., from the organisation) arise for another group (e.g., control) to receive similar treatment.
• **Compensation rivalry**	The relationship might be due people excluded from the treatment (i.e., control group) becoming competitive and exerting additional effort which might improve the scores of the control group on the dependent variable.
• **Demoralisation**	The relationship might be due people being resentful for not being included in the experimental group.
• **Compensation**	General Compensation: selection bias due to participants participating only to receive compensation. Control group compensation: control group only receives a compensation to avoid demoralization (above). The control group cannot longer be considered control.

Specific designs are not advisable because they cannot deal with threats to internal

validity. For instance, Cook et al. (1990) and Robson & McCartan (2015) caution against using

(1) a one-group post-test only design (i.e., a single experimental group receives treatment and

then a post-test is administered to this experimental group). Without a pre-test and a control

group, it is not possible to establish whether any change has taken place and to rule out most

threats to internal validity (e.g., maturation, statistical regression, history). (2) A post-test non-

equivalent groups design (i.e., a single experimental group receives treatment, but a post-test is

administered to both the experimental group and a comparison group). The absence of a pre-test

makes it hard to determine whether post-test differences between groups are due to the

experiment, pre-existing differences, or other factors (e.g., history). Simultaneously, it is not

possible to control for pre-existing differences between groups given the absence of a pre-test.

(3) The pre-test post-test single group design (the experimental group receives a baseline test, an

intervention, and then a post-test). While more robust than the previous two designs and widely

used (Robson & McCartan, 2015), there are still potential threats to internal validity. For

instance, it is not possible to rule out maturation, statistical regression, or history (Cook et al.,

1990). The designs indicated above have severe limitations in terms of validity and reliability

that limits their interpretability.

More robust designs are needed when using an experimental approach to infer causal

relationships and determine an intervention's effects. This said, there is not a single best design

to implement interventions in organisations (Shadish et al., 2002). For instance, although,

theoretically, RCTs are often considered superior, quasi-experiment might be more appropriate

in the context of applied organisational research depending on context and circumstances (Biggs

et al., 2014; Shadish et al., 2002). Organisational obstacles to experiments are many (Pawson,

2013; Shadish et al., 2002) and require a flexible approach to designing and interpreting

interventions (Robson & McCartan, 2015). For example, cluster randomisation is increasingly

being used in applied research (instead of individual randomisation) not only to minimise issues

of contamination (Molina & O'Shea, 2020; Torgerson, 2001) but also for practical reasons. For

instance, it would not be practical to allocate individual employees to different supervisors (or, in

other contexts, individual pupils to different teachers) randomly (Torgerson, 2001). Some critics

underplay the value of organisational interventions because of the required flexibility and

difficulty establishing a universal 'gold standard'. Many argue that experiments should have a

standard implementation, strong program theories, treatments that are entirely loyal to theory

(Shadish et al., 2002). These conditions are rarely met in the real world given the complex nature

of organisations (Shadish et al., 2002); however, this does not mean the organisational

interventions are not valuable (Shadish et al., 2002). The pragmatic truth is that

interventions/experiments make a concrete contribution when they prove that the intervention, as

implemented, determines improvements on given outcomes beyond "other background

variability" (Shadish et al., 2002, p. 489).

To test whether or not an intervention has had the desired outcome (and therefore it

makes a concrete contribution), it should be able to demonstrate (a) causation (the intervention

has caused the outcome beyond other factors) and (b) change (the outcome has improved over

time). Accordingly, regardless of specific design choices (cluster or individual randomisation),

an intervention design becomes more reliable when it includes (1) a pre-test and a post-test (2)

administered to both an experimental and a control group. These two elements are necessary to

establish with more confidence whether any change is due to the programme and not to

extraneous variables (and minimise threats to internal validity; Cook et al. 1990; Robson &

McCartan, 2015). The present study starts from this assumption and ensures that the

interventions implemented to test the hypotheses involve experimental and wait-list control

groups as well as pre and post-test measurements (i.e., see section 3.2.).

This said, further attention was devoted to minimising threats to internal validity and maximise validity and reliability. For instance, the interventions were carefully designed, with defined program theories and standardised procedures (described below) that can assist generalisation and replication and increase the reliability of treatment implementation (Cook et al., 1990). Steps were also taken to minimise threats such as testing threat, maturation, history, regression to the mean, compensatory rivalry and demoralisation, diffusion of treatment/contamination (for a summary of these steps refer to section 5.4.). Similarly, attention was devoted to reducing biases such as demand characteristics (knowing that they are in an experimental situation, participants answer or behave as they expect they should) or participant bias (participants trying to impress the researcher or managers). At the same time, care was taken to ensure that the results are reliable (e.g., thorough preliminary analyses were run to assess the factor structure and dimensionality of the constructs under investigation). The steps taken to maximise validity and reliability are introduced in the following sections and will be summarised in the limitations (section 5.4.). In conclusion, as further shown in the following chapters, a significant amount of effort was devoted to the preparation, delivery and data analysis phases of this research to ensuring that the results are as valid and reliable as they can be in real-world settings.

3.2. Method Study 1

3.2.1.   Participants and Procedures

Participants in the main study were call-centre agents of a British utility company. The initial sample consisted of 276 participants. Seven participants began either T1 or T2 survey but completed less than one-third of the questions. In agreement with previous research (i.e., Gordon et al., 2018), these responses were excluded. Consequently, the final sample was made of 269 participants, with 97.5% of participants recruited completing at least one survey or both. Participants were cluster-randomised to one of the different conditions (i.e. top-down; bottom-up; both interventions; wait-list control) according to their department and location where they worked, as shown in Figure 7. I used a cluster-randomised trial design to ensure that participants in the same department received the same intervention (or no-intervention) and minimise issues of contamination (Molina & O'Shea, 2020).

Agents in the debt recovery department ($n = 62$) did not attend the job crafting workshop at T1 and were under the supervision of line managers who participated in the supervisors' training. Agents in the billing department ($n = 85$) participated in the workshop in job crafting, but their line managers did not attend the training for supervisors at T1. Agents in the operations department ($n = 54$) participated in the job crafting workshop and were under the supervision of line managers who participated in the training for supervisors at T1. Agents working in the billing department of a different region ($n = 68$) did not receive any intervention at T1. As shown in Figure 7, participants were in this way allocated to the job crafting intervention ($n = 139$; wait-list $n = 130$) and the management development intervention ($n = 116$; wait-list $n = 153$). Sixty-eight agents did not receive any intervention at T1, and 54 agents received both interventions at T1.

Figure 7

Study 1 Summary of Participants Flow adapted from Molina & O'Shea (2020) and CONSORT 2010 flow diagram (Schulz et al., 2010).
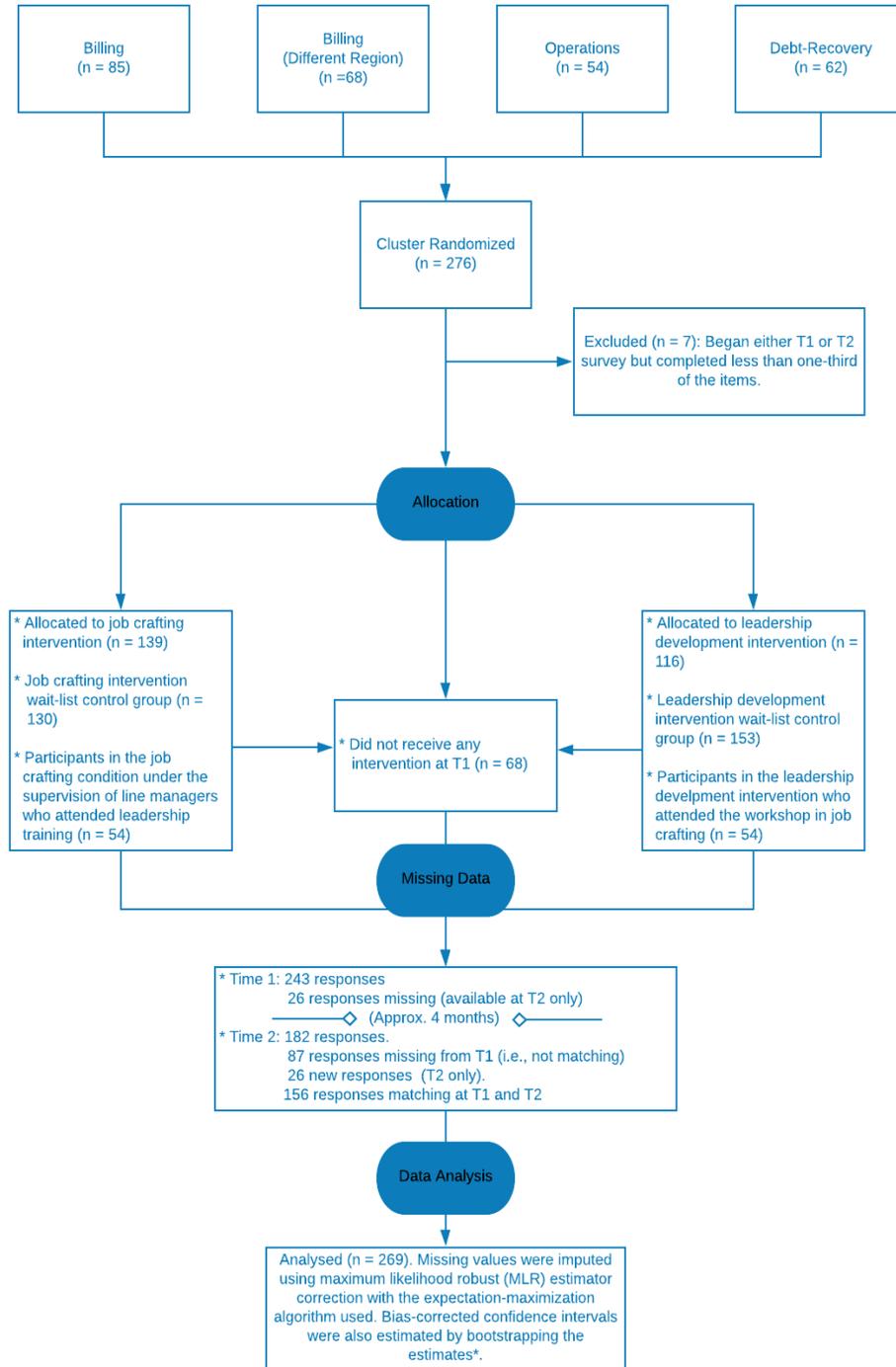
Note. N = 276. *See sections 3.2.1.2. and 4.1.1.2. below for information on missing data and estimators.

It must be noted that three of the four departments shared the same (vast) building. However, each department had completely different functions (i.e., debt recovery, operations, billing) and was located in closed areas in different sections (and floors). Therefore, overall, each department's agents had limited opportunity for contact with agents of other departments. Participants in the wait-list control group worked in a department in a different city. Contamination of the control group from the experimental groups and of the different experimental groups was thus minimised.

3.2.1.1. Demographic Data

Demographic data are available for T1 data only ($n = 243$). Namely, to ensure T2 data collection and meet the organisation's needs and requests, demographic questions were removed at T2 (to reduce participants' cognitive load and fatigue and ensure data collection during a time of significant change, transition and demands for the organisation). Participants who completed T1 data collection were 69.1% women and 29.2% men with a mean age of 35.94 ($SD = 12.20$). The average job tenure was 5.43 years ($SD = 6.81$), while most participants (i.e., 59.6%) had worked under the supervision of their current line managers for less than a year ($M = .99$; $SD = 2.26$).

3.2.1.2. Procedures and Context

Initial contacts were taken with the Head of People of the organisation. Different meetings were scheduled when I presented the research and what the interventions involved. Following the initial meetings, we visited one of the locations of the intervention. On this occasion, I gained information about the call-centre agents' jobs, the differences between departments, the organisational culture and vision, the structure of the building, the resources available for employees, their needs, and current changes (and issues) involving the organisation

and its people. Notably, the organisation was facing a difficult period of restructuring and change

due to wider factors. It was experiencing high levels of turnover, sickness and absenteeism

amongst agents. Previous initiatives had not brought significant, positive changes. The

organisation was planning and implementing new initiatives (e.g., increasing the availability of

resources such as free health care and counselling) to reduce turnover and absenteeism.

The information gained during this visit (and in other meetings) were used to tailor

certain aspects of the intervention to the specific needs and circumstances (i.e., the conditions the

intervention finds itself in; Pawson & Tilley, 1997) of the organisation and the sample (e.g.,

provide tailored examples during the workshop to facilitate understanding in line with Dubbelt et

al., 2019; see intervention details below). Once agreement had been granted to proceed with the

interventions, the human resource department decided to include the workshops for managers

and agents as a compulsory element of their learning and development plan. Therefore, every

agent and team-leader was booked into a training session - (details about the workshops are

provided in the following two sections) in agreement with the (cluster) random allocation of

participants shown in Figure 7. Participants in the wait-list control groups were scheduled to

attend the workshop after T2 data collection. The organisation's resource planning and delivery

team asked to limit the number of participants per session to a maximum of six (often less) to

ensure they had the resources to cope with customers' demands.

As said earlier, (real-world) interventions are not dispensed in a vacuum, and sources of

complexity (e.g., emerging properties, implementation difficulties) are endless (Pawson, 2013).

Organisational interventions are dispensed in a world of interventions (i.e., intertwined

programs, initiatives, policies; Pawson, 2013) and, it must be added, the larger the sample, the

more complex it becomes to engrain the intervention in the organisational routine and daily

demands. The sources of complexity encountered during the implementation process (e.g.,

organisational emergencies, technological hindrances) cannot be fully described for space limits,

although relevant ones (e.g., uncooperative participants) will be discussed in the discussion

(Chapter 5). For now, it shall be noted that (1) the large number of workshops scheduled, plus

unpredictable practical challenges (e.g., sessions delayed due to high customers' demands), have

required a high degree of adaptation and effort. (2) As introduced above, because attendance at

the sessions was made compulsory for managers and workers (survey completion was

voluntary), the interventions have been implemented under a singular (but real) scenario.

Namely, previously published interventions (except very recently Demerouti et al., 2020)

involved volunteers only (e.g., Demerouti et al., 2017; Dubbelt et al., 2019; Gordon et al., 2018).

This factor has represented a significant opportunity but also a challenge. An opportunity

because self-selection bias and effect can be ruled out (providing a critical methodological

advance over previous studies) enhancing the external validity of the research. Having the whole

departments attending the sessions also allowed the author to meet every call-centre agent (and

team leader) in each department. Therefore, I could develop a clear, profound picture of the

climate in the departments. I could listen (and gain qualitative evidence) about issues, anxieties,

and wishes as well as develop a research diary (i.e., emergent case study) which represented a

valuable resource to understand the interaction between the intervention and the context as well

as to deepen the understandings of the results emerged from statistical analyses (e.g., sections

5.1.1.). The workshops' compulsory participation also represented a challenge as several agents

and team leaders attended the workshops without having a particular interest in them. Thus,

some participants were less involved during the workshop or even acted against it (as discussed

in section 5.1.1.3.). A significant amount of effort was required to engage these participants and

ensure they did not affect the other participants' volitions toward the intervention and the

workshop's climate.

This said, three weeks before the first scheduled workshops, the human resource

department rolled out to all the participants an email on my behalf with an invitation to complete

the questionnaire voluntarily and with a link to access the (online, anonymous) survey[15].

Previously, posters designed by the author had been sent to agents and team-leaders with

information about the procedures and goals of the study as well as about anonymity and

confidentiality. Participants were informed that participation in the survey was voluntary and that

they could stop answering the questionnaire at any time. Further information about the

participants' data rights was provided. Participants were asked to agree to take part in the

research before continuing to the questionnaire. The survey included demographic questions and

the pre-test measures of the variables under investigation (see measures section below). For all

surveys, participants were asked a set of questions to generate a self-generated identification

code (SGIC) made of information known to the respondents and not the research team (Schnell

et al., 2010; Yurek et al., 2008).

Because the organisation could not provide participants' email addresses, the SGIC was

necessary to ensure anonymity while being able to match responses over time. In agreement with

the literature (i.e., Yurek et al., 2008), SGICs with more than one missing element were

considered non-matching responses (i.e., participants who completed only either T1 or T2). As

indicated in Figure 7 above, 156 responses matched at T1 and T2, and there were 113 non-

matched responses treated that provided data at either T1 ($n = 243$) or T2 ($n = 182$) only (see

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[15] Ethical approval was obtained from the UEA Research Ethics Committee before proceeding
with data collection.

sections 4.1.3. and 4.1.1.2. for further information on data screening and estimators). It must be

noted that respondents often do not provide consistent code elements (i.e., false negative) over

time (Schnell et al., 2010). It is, therefore, possible that specific non-matching responses might

come from the same participants. This aspect, with other arguments (see immediately below),

made a compelling case to use all the available information in data analysis (i.e., include non-

matching responses) to avoid the loss of vital information (i.e., removing data from participants

who completed T1 and T2 surveys but mistakenly provided non-consistent code elements, i.e.,

false negative). This was achieved by using maximum likelihood robust (MLR) estimator (see

Brown, 2015; Crowson, 2018; Field, 2017; Kang, 2013; Knight et al., 2021; Muthén, 2015) and

maximum likelihood estimator (ML) with 1000 bootstraps (see Field, 2017; Kelloway, 2017;

Kline, 2015; Muthén & Muthén, 2012; Tibshirani & Efron, 1993; Wright et al., 2011) as robust

methods to handle missing data. (As noted in section 4.1.1.2., analyses were also repeated using

listwise deletion)[16]. Using all available information emerged as necessary also because different

participants who attended the workshop did not remember whether they had completed the pre-

test survey or reported not to have completed it. Moreover, the organisation experienced a high

level of turnover between T1 and T2. Different participants had left the organisations, and some

changed their role (e.g., received a promotion). Considered (particularly in the context of change,

restructuring, and high turnover) the relatively long time lag between T1 and T2 (see Nielsen &

Miraglia, 2017 or Pawson, 2013, for a discussion about the challenges of implementing

interventions in a changing context), using all the information available was considered crucial to

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[16] Refer to sections 4.1.1.2., 4.1.3. for more detailed information on estimators and data screening.

avoid the loss of valuable information (removing data from participants who did attend the

workshop) and to draw robust conclusions (refer also to section 4.1.1.2.).

The organisation's resource planning and delivery team booked a twenty-minute (paid)

slot for each participant to complete the survey, and care was taken to ensure agents and team-

leaders completed the questionnaire (at least two weeks) before attending the workshop. The fact

that each participant had an allocated slot of time during their shift to complete the survey helped

to limit the responses with missing data (only seven responses had more than 50% of missing

data) and obtain a high number of responses (i.e., $N_{T1} = 243$; $N_{T2} = 182$; Figure 7). The response

rate was high (T1 = 90% T2 = 68%), particularly considering that the organisation was facing a

period of renovation, restructuring, and change and that other initiatives (e.g., internal surveys,

implementation of new systems and procedures, re-shaping of intra-department teams, etc.) were

being implemented.

The follow-up T2 was taken four months after T1 data collection. As indicated by

Dubbelt and colleagues (2017), there are no clear indications about the ideal time to evaluate a

job crafting intervention's outcomes. Nevertheless, one of the most significant limitations of

most previous job crafting interventions (see Table 1) was the short follow-up period (e.g., in

some cases, as short as two weeks after the intervention; Table 1; Kuijpers et al., 2020; Oprea et

al., 2019). A short follow-up does not allow to evaluate delayed effects and/or misses to

determine whether existing relationships (i.e., effects found) would have faded away in previous

interventions (Kuijpers et al., 2020). In this sense, the longer follow-up of this study and the

significantly larger sample size compared to most previous studies represent two of this study's

main contributions.

Following T1 data collection, four workshops of about three hours were run with team-leaders. Twenty-six workshops of about three hours were run with call-centre agents in the experimental groups. In the following section, the ideation, content, and procedures of the interventions are presented.

3.2.2.   Interventions

3.2.2.1.   *The job crafting intervention*

Previous job crafting interventions (Figure 8 below, see also Table 1) and job crafting theory formed the basis for developing the job crafting intervention. It must be noted that the intervention was designed in 2018, with some further intervention studies being published subsequently (refer to Table 1). Whenever possible, the new studies have been added as references in the following sections, which describe the development and stages of the job crafting intervention.

3.2.2.1.1.   *Job crafting intervention: Introduction*

As discussed earlier (section 2.2.), job crafting was expected to enhance the workers' well-being, sense of meaning at work and coping efficacy by assisting employees optimise their resources and demands (while modifying their beliefs about their jobs) and better align these to their individual's abilities, needs, motives, passions and strengths (Bakker, 2011; Berg et al., 2013; Costantini & Sartori, 2018; Dubbelt et al., 2019; Kristof-Brown et al., 2005; Tims & Bakker, 2010; Tims et al., 2013; Tims et al., 2016; Wrzesniewski et al., 2013). To align tasks and relationships at work to their individual's abilities and interests, employees need, in the first place, a clear overview of their jobs (i.e., tasks requiring more or fewer energies, job demands, resources, hindrance and, challenge stressors) as well as of their own strengths, interests and motives (Berg et al., 2013). A clear analysis of the job (e.g., how one is spending his/her energies

at work) in relation to one's preferences and abilities is necessary to, subsequently, identify

meaningful situations to craft (Berg et al., 2013; Kooij et al., 2017; see also Demerouti et al.,

2017; Hulshof et al., 2020; Kuijpers et al., 2020; van den Heuvel et al., 2015; Van Wingerden,

Bakker, et al., 2017a, b). Indeed, employees need to reflect on how they are allocating their

personal resources at work and on which tasks, relationships, beliefs, and behaviours match (or

can potentially match) their strengths, motives, and interests to make targeted changes to their

jobs (i.e., enhance P-J fit and meaningfulness; Berg et al., 2013; Kooij et al., 2017; Kuijpers et

al., 2020; van den Heuvel et al., 2015; Van Wingerden, Bakker et al., 2017a, b). Job crafting

interventions should thus involve a defined set of steps (Berg et al., 2013; Kooij et al., 2017;

Kuijpers et al., 2020; Van Wingerden, Bakker, et al., 2017a, b) which assist employees (1)

analyse and deconstruct their jobs (i.e., have a clear overview of tasks, job demands, resources

and of how they are allocating their energies at work); (2) reflect on their strengths, motives, and

interests; (3) match their tasks, relationships, cognitions, and behaviours at work to personal

strengths, motives, and interests (e.g., identify tasks that reinforce strengths, motives, and

interests and thus align what they like to do at work with what are good at; see below for more

information), and (4) subsequently ideate and implement a job crafting plan to increase P-J fit

and sense of meaning at work. The literature does not provide clear answers on how to

successfully structure and organise these steps in the design of a job crafting intervention.

Different authors have designed and implemented different job crafting interventions with

various procedures, stages, and exercises, within different professional contexts and with

different outcomes (Table 1). It was, therefore, difficult to replicate, with confidence, a specific

set of procedures, particularly because effective interventions at the time of designing the present

study had specific samples such as female teachers and nurses/medical specialists (e.g., Gordon

et al., 2018; Van Wingerden, Bakker, et al., 2017b). Moreover, as discussed in section 2.2.2.1.,

previous interventions had limitations that made it difficult to replicate them confidently. As

shown in Table 1, most job crafting interventions have been implemented in the Netherlands,

with primarily female participants, had short follow-ups, and obtained diverse or even conflicting

outcomes even when considering the same intervention (e.g., Sakuraya et al. 2016; 2020).

Nevertheless, some common elements emerged from the literature (Figure 8) that, along with

theoretical arguments, can guide the design of particular stages in a job crafting intervention.

Figure 8

The main elements identified in published job crafting interventions
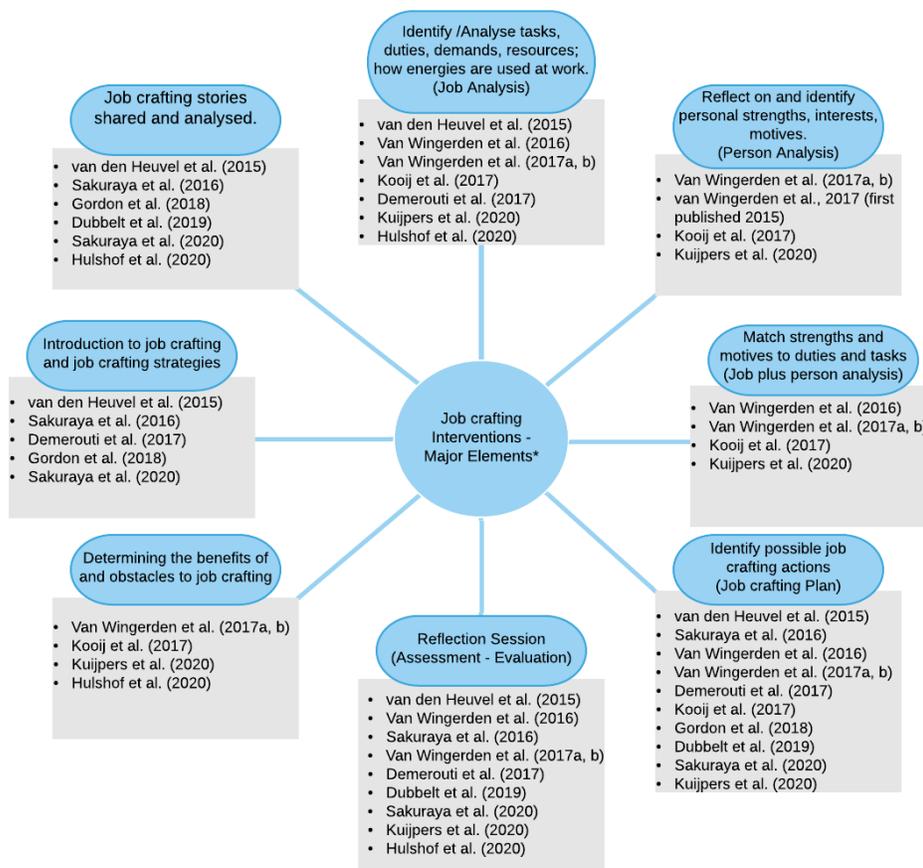
Note. *Refer to Table 1 for further details about each intervention.

Identifying common elements in job crafting interventions and standardise a set of

procedures in the design and implementation of job crafting interventions was seen as essential

to allow meaningful replications. Standardising procedures is also necessary to have a clear and

exact understanding of the extent to which job crafting interventions work (allow valid meta-

analyses), under which circumstances, and with who (and increase the reliability of treatment

implementation; Cook et al., 1990). This said it is acknowledged that the specific content of the

stages shown below may need to be tailored according to particular professions and contexts.

3.2.2.1.2.   *How to Structure a Job Crafting Intervention*

As introduced above, some common elements emerged from the literature that can guide

the design of particular stages in the job crafting intervention. Overall, these elements have been

captured by a set of consequential steps followed by Van Wingerden, Bakker et al. (2017 a, b),

even though they may have overlooked providing an initial introduction to job crafting to

participants. Based on their intervention, and by summarising previous research, the following

stages have been identified that can inform the design of a job crafting intervention.

First (Step 1), there seems to be an agreement that the intervention should start with (or

have at some point) a general introduction on job crafting and job crafting strategies (Demerouti

et al., 2017; Gordon et al., 2018; van den Heuvel et al., 2015; Sakuraya et al., 2016, 2020). -

(Case studies and job crafting stories could be introduced and analysed in this step; Dubbelt et

al., 2019; Gordon et al., 2018; Hulshof et al., 2020; Sakuraya et al., 2016; van den Heuvel et al.,

2015). Subsequently (Step 2), the intervention should allow employees to identify and analyse

their tasks, duties, demands, and resources and clarify how they are allocating their personal

resources and energies at work (i.e., job analysis). A job analysis is necessary to help employees

identify situations they would like to craft (Demerouti et al., 2017; Kooij et al., 2017; Kuijpers et

al., 2020; van den Heuvel et al. 2015; Van Wingerden, Bakker, et al., 2017a, b). A person analysis (Step 3; i.e., reflect on and identify personal strengths, interests, motives) is necessary to subsequently (Step 4) assist employees matching their strengths and motives to their duties and tasks (i.e., job plus person analysis; Kooij et al., 2017; Van Wingerden, Bakker, et al., 2017a, b; see also Kuijpers et al., 2020). Overall, employees need to reflect on (and recognise) their strengths, motives, interests (and needs) to perform a job plus person analysis and identify those tasks and behaviours which indeed reinforce and reflect (or potentially can reinforce and reflect) their individual's abilities and interests (Kooij et al., 2017; Kuijpers et al., 2020; Van Wingerden et al., 2017). Lacking reflection and awareness of one's strengths, passions, interests (and needs) in relation to one's job, it is, arguably, not possible to identify actions to enhance P-J fit and meaningfulness (see Berg et al., 2013; Kooij et al., 2017; Wrzesniewski et al., 2013). A job plus person analysis might also assist employees in identifying where potential person-job misfit exists and modify their job characteristics (or behaviours) accordingly (Kooij et al., 2017) as well as to prepare employees to identify concrete changes in their job characteristics according to their abilities and interests (see intervention steps below). Indeed, following a job plus person analysis, the intervention should assist employees (Step 5) in identifying possible job crafting actions such as seeking challenges and resources (Van Wingerden, Bakker, et al., 2017 a, b; see also Demerouti et al., 2017; Gordon et al., 2018; van den Heuvel et al., 2015; more recently Dubbelt et al., 2019) or, in agreement with this thesis' definition of job crafting, modifying tasks, behaviours, and the cognitive and relational boundaries of their job to align these better to their abilities and needs (Berg et al., 2013; Kooij et al., 2017; Wrzesniewski et al., 2013; see also Sakuraya et al., 2016, 2020).

Other steps also emerged as valuable to enhance the effectiveness and long-term impact of the intervention. Namely, (Step 6) identifying whether job crafting had been successful after a certain period and (Step 7) determining the benefits of and obstacles to job crafting (e.g., Van Wingerden, Bakker et al., 2017a, b). Overall, the stages highlighted above summarise various elements identified in the literature and implemented in previous job crafting interventions (Figure 8, Table 1) and reflect the steps of the job crafting intervention implemented by Van Wingerden, Bakker, et al. (2017b). Considering that the latter was successful at increasing job crafting behaviours and fostering work engagement among teachers (although the sample was not homogenous and was primarily of women), the same consequential steps were followed in this research, with some relevant theory-driven changes discussed next.

Figure 9

Job crafting intervention design in Van Wingerden, Bakker et al. (2017b; p. 168)
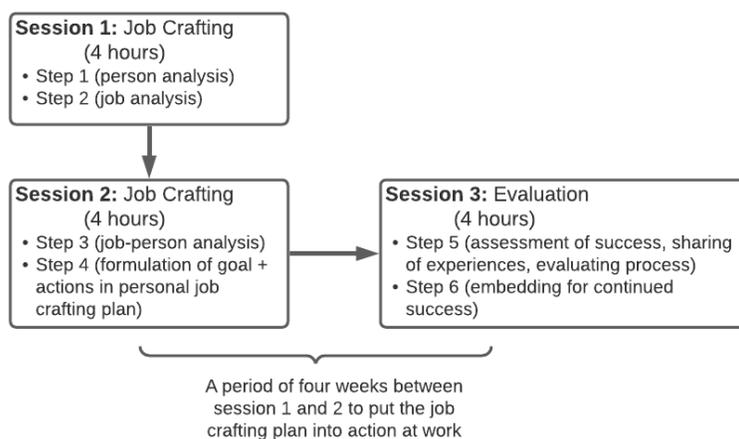
Van Wingerden et al. (2017b) based the intervention on the Michigan Job Crafting Exercise (JCE; Berg et al., 2008) operationalised according to the JD-R model and the principles of proactive goal-setting (Parker et al., 2010). The exercises and goal setting in their intervention aimed at increasing challenge job demands and social and structural job resources. Although I

have designed the intervention following the same general steps (with the addition of a different

initial stage), I have modified their content (i.e., some exercises) and procedures to reflect the

proposed operationalisation of job crafting as well as for theoretical reasons. As said above,

while developing and following a set of standardised general stages in job crafting interventions

is crucial, the content of these stages should be modified or tailored according to specific

contexts and professions as well as to introduce relevant theoretical aspects that can improve

their effectiveness. Specific changes were seen as critical to ensure that the intervention was

aligned with the organisational context (i.e., the conditions the intervention finds itself in; see

Pawson & Tilley, 1997), to maximize the transfer of training (Ford et al., 2018), and to introduce

relevant theoretical elements (e.g., ensure that cognitive, relational, and behavioural elements

were combined; Kuijpers et al., 2020).

For instance, Van Wingerden and colleagues (2017b) did not include crafting hindrance

demands among the job crafting strategies introduced to workers to develop a personal job

crafting plan. Reducing hindrance demands, indeed, emerged as unrelated or negatively related

to work engagement, well-being, or performance (Brenninkmeijer & Hekkert-Koning, 2015;

Demerouti et al., 2017; Gordon et al. 2018; Petrou et al. 2012; Tims et al., 2013; see also

Lichtenthaler & Fischbach, 2019; Rudolph et al., 2017). Simultaneously, job crafting does not

seem to lead to a reduction in hindrance job demands (Tims et al., 2013; Gordon et al., 2018).

Nevertheless, as discussed in section 2.2.3., it can be argued that some employees cannot or are

not willing to craft their hindrance job demands due to contextual factors (e.g., due to a fear of

consequences, managers do not accept/support changes or add even more hindrance demands,

adverse supervisory reactions; Tims et al., 2013; Gordon et al. 2018; recently, Fong et al., 2020).

I anticipated that the integration of top-down and bottom-up elements (plus relevant changes in

how employees are trained to craft hindrances as discussed below) in the present job re-design

intervention could lead to different results regarding the effects of job crafting on crafting

hindrance demands and of the latter on P-J fit, coping efficacy, meaning, and well-being

compared to previous research. Indeed, by fostering a psychosocial working environment that is

more supportive for job crafting and proactive behaviours, I expected that employees would have

the supervisory (and autonomy) support (see Slemp et al., 2015; Tafvelin et al., 2018) needed to

craft successfully also their hindrance job demands. Moreover, instead of dropping reducing

hindrance demands as a job crafting strategy, in this study, participants were trained to craft (i.e.,

not just reduce) hindrances.

Namely, by combining and moving forward elements from the JD-R model (Tims &

Bakker, 2010; Tims et al., 2012) and Wrzesniewski and Dutton's (2001; see also Berg et al.,

2013; Wrzesniewski et al., 2013) model of job crafting (as well as of very recent

conceptualisations such as approach and avoidance job crafting behaviours; see Hu et al., 2020),

participants in the present study were trained to (craft their job to) cope better with hindrance

demands through specific strategies. Participants were instructed that they could (1) change how

stressful tasks are performed. For instance, employees can increase the use of strengths, interests,

and motives to enjoy more and perform better in stressful tasks (see below for more

information). (2) They could re-design specific tasks (particularly stressful ones) and change

when and how to accomplish them to align better these tasks to their needs, abilities, and

preferences, and better cope with them (examples provided below). (3) They could use specific

resources (e.g., learning opportunities) to cope better with hindrance demands. (4) They could

cognitively craft their job (e.g., focusing on the value of a particular task which is valuable to

employees and consider less enjoyable ones just as necessary to perform what employees like;

more info below).

In other words, I did not remove crafting hindrance demands as a job crafting strategy in

the context of the intervention but changed how crafting hindrance demands is conceptualised

(and taught) by broadening the spectrum of options possible to craft stressful job demands. In

this way, crafting hindrance demands can be seen as a form of active coping that goes beyond

reducing demands (avoidance crafting) and expand the concept of optimising demands (arguably

approach crafting; see recent articles of Hu et al., 2020, and Demerouti & Peeters, 2018) by

providing a set of coping strategies against hindrance stressors which include cognitive and

behavioural elements and minimise avoidant (possibly counter-productive for wellbeing and

work engagement; Hu et al., 2020) job crafting behaviours. Research published after the

implementation of the present intervention has confirmed this proposition since "effective job

crafting – i.e., crafting behaviour that matches the definition of job crafting as adaptive

behaviours that create a better person-job fit, mainly consists of approach-promoting work

behaviour and active coping behaviour" (Hu et al., 2020, p. 14).

Unlike Van Wingerden and colleagues (2017b), I have also included cognitive crafting

amongst the job crafting strategies introduced to workers (in line with the formulated

operationalisation of job crafting and the arguments discussed in section 2.2.3.). To assist

employees crafting the cognitive boundaries of their jobs (see below for a step-by-step

description of the intervention), they were encouraged to (1) develop a personal work mission

statement and identify the broader purpose and impact of their jobs (i.e., expanding perceptions;

Berg et al., 2013). Participants were encouraged to (2) draft parallels between their tasks or

relationships at work and their interests, passions, or experiences (linking perceptions; Berg et

al., 2013). For instance, an employee with experience in team-sports can draw parallels between her personal interest (e.g., passion and experience in rugby) and tasks requiring teamwork. In this way, she can put her experience and passion into practice to enjoy teamwork more. Finally, participants were instructed to (3) identify the aspects of the job from which they gain more meaningfulness (focusing perceptions; Berg et al., 2013). For instance, an extraverted employee can focus on the importance of networking and teamwork and consider tasks he/she enjoy less (e.g., tasks requiring working alone) as complementary.

It is not clear whether, in step 1 (person analysis), Van Wingerden et al. (2017b) asked participants to identify also their passions-interests (they mention strengths, motives and relatedness and contribution towards the team). It is argued (in agreement with Berg et al., 2013; Kooij et al., 2017; Kuijpers et al., 2020; Wrzesniewski et al., 2013) that it is important to ask employees to identify also their interests (in addition to strengths and motives) to craft their jobs according to the latter and further enhance P-J fit (Kooij et al., 2017; Kuijpers et al., 2020). In particular, identifying interests was seen as critical to subsequently craft the cognitive and relational boundaries of one's job (see Berg et al., 2013). Furthermore, recently (following the present study's design), it has emerged that crafting towards interests is associated with dedication and absorption in employees (Kuijpers et al., 2020).

In Step 3 (job plus person analysis), Van Wingerden and colleagues (2017b) ask participants to match their strengths and motives with their duties and tasks. It is argued that participants should be encouraged to reflect also (or alternatively depending on the profession) on how some tasks (and how these are performed) could be changed to reflect better their strengths, interests, and needs, as well as on what new tasks (e.g., new challenges) could be added to their jobs that reflect their interests and values (Berg et al., 2013). Some employees

might not have many tasks to perform at work (e.g., in this case, call centre agents) and might find it difficult to match their strengths and motives to the latter given their limited amount. However, they can change how they perform the tasks (e.g., increase the use of strengths or start using their strengths where they are not) or add some new tasks that are attractive to them. For instance, a call centre agent might consider approaching customers' in a way that best reflect his strengths and values (e.g., asking some quick questions to build a relationship before addressing customers' issues; practice active listening to foster coaching skills). A researcher (in specific fields) can write her papers more creatively to enjoy more this task and reflect, in this way, her interest in literature. At the same time, employees can re-design specific tasks (particularly stressful ones) and change when and how they accomplish them to align better these tasks to their needs, abilities, and preferences and better cope with them. For instance, an employee who finds it distracting to receive and answer emails can set an hour per day for this task, so he does not have to worry about emails while doing other important jobs. Employees can also emphasise tasks (Berg et al., 2013); that means, spend more time, energy, and attention on those tasks that give them a sense of purpose to increase their motivation. Employees can add new (challenging) tasks in their job, which, being aligned to their abilities and interests, can help them stay motivated and energised (e.g., take the leader's role in a new project to use one's leadership skills). Employees can also increase the use of the resources available to match better their jobs to their strengths and interests (e.g., use a particular training to use even better specific strengths) as well as meet particular needs (e.g., use supervisory support to address an ongoing issue). In other words, in the person plus job analysis in the present study, employees were encouraged to consider a broader set of options through which they can match better their job to their abilities, interests, motives, and needs.

In step 4 (developing a personal job crafting plan), Van Wingerden et al. (2017b) asked participants to increase their social (and structural) job resources. In agreement with the arguments presented in section 2.2.3., and the thesis' operationalisation of job crafting, it is argued that employees should be instructed to craft the relational boundaries of their jobs (including reframing, adapting, or building new relationships; Berg et al., 2013) instead of simply and generically increasing their social job resources. The final three steps were broadly aligned with Van Wingerden et al.'s (2017b) evaluation session and are described in the following section.

Overall, although I followed the same general steps of the intervention implemented by Van Wingerden and colleagues (with an additional initial step dedicated to an introduction to job crafting), I applied significant, theoretically and contextually driven changes to the procedures. I also implement different exercises. For instance, positive psychology literature was used to help employees identify their strengths and develop a personal work mission statement to broaden their perception of the impact and purpose of their jobs. Positive psychology principles and exercises are increasingly being used to inform organisational interventions to foster employees' work engagement and well-being (Costantini & Sartori, 2018; Mills et al., 2013), and growing evidence supports their relevance in promoting positive outcomes (Costantini & Sartori, 2018; Lopez et al., 2018). I also used evidence-based learning principles (e.g., a learner-centred approach; developing exercises such as guided peer coaching that can encourage a deep approach to learning and higher-order thinking; see Fry et al., 2008). It follows a summary of the various steps and procedures of the job crafting intervention.

3.2.2.1.3. *The Job Crafting Intervention: Stages*

- **Pre-workshop Assignment**

In anticipation of the person analysis (Step 2), participants were asked to complete a strength survey (i.e. the Values in Action Inventory of Character Strengths, VIA). The VIA is a valuable and established tool to discover one's character strengths and can be used in the context of interventions that require identifying one's strengths (Magyar-Moe, 2009; Seligman, 2013). Two weeks before the first scheduled workshops, the resource planning team sent an email on the author's behalf to participants in the experimental group with the request to complete VIA. Details on the value and benefits of the VIA were provided, and participants were asked to record their top-five strengths on paper (or smartphone, laptop) and bring this to the workshop (Kooij et al., 2017; Van Wingerden, Bakker, et al., 2017b; recently Kuijpers et al., 2020).

- **Step 1: Introduction to Job Crafting**

Following an overview of the idea and background theory of job crafting and a real-life example of job crafting (see workshop provided to participants in Appendix 1), participants worked in pairs and discussed instances of personal job crafting stories (e.g., Dubbelt et al., 2019; Sakuraya et al., 2016, 2020). Namely, in the light of the knowledge gained about job crafting, employees were encouraged to identify past behaviours that reflect the concept of job crafting and that helped them solve issues or achieve positive outcomes. A pair discussion and a group discussion facilitated by the author allowed employees to help each other on this task by sharing their personal stories and experience and enhance mutual understanding. Participants were also given the time to write notes or reflections about job crafting experiences on the workbook provided. As indicated by Gordon et al. (2018), who implemented a successful job crafting intervention, "stimulating reflection from actual (past) situations can help individuals to

bridge the gap between positive past behaviour and future goals (i.e., stimulate actualisation of

job crafting) and to increase their understanding of what helps them proactively adjust their jobs"

(p. 102). For example, an employee working in a call centre could share how enrolling in a

particular course (use of resources) helped her handle better customers' issues, use her strengths

(e.g., persuasion skills), as well as increase motivating challenges (e.g., ask her supervisor to

handle severe cases and feel proud after solving these). Another could share how useful it was to

spend one entire day with technicians to understand their job better and thus help better the

customers on the phone. Another could share how using the organisations' counselling service

helped her overcome feelings of anxiety after a traumatic event. A police officer could share how

asking for help from colleagues helped learn a new IT system being implemented.

- **Step 2: Person Analysis**

      As introduced above, in anticipation of the person analysis (i.e., identify strengths,

motives, interests; see Berg et al., 2013; Kooij et al., 2017; Kuijpers et al., 2020; Van Wingerden,

Bakker et al., 2017a, b) participants were asked to complete the VIA survey before the training.

It must be noted that very few participants completed the survey. Most agents reported that they

did not receive the invitation. Others confessed that they receive too many emails and often do

not read them. Moreover, the resource planning team could not send any reminder after the

initial email with the invitation to complete the VIA. Given that it was pivotal for the participants

to reflect on their strengths during the workshop, I ideated a back-up plan. Namely, I printed a

handout (VIA institute, 2019, Figure 10) for each participant, with the different character

strengths listed. During the workshop, projecting the respective image, I also read the description

of each strength and asked attendees to reflect on their own strengths in relation to the

descriptions and to write down the strengths that they felt best reflected themselves. To help

participants better reflect on their strengths, during the workshop, participants were also asked

(1) to perform the 'at my best exercise' retrieved from the coaching psychology literature

(Driver, 2012). Namely, participants were encouraged to think of a time when they felt at their

best (e.g., while playing a sport, giving a presentation) and writing down all the strengths they

were showing on that occasion.

Figure 10

Handout (VIA institute, 2019) for participants to help them reflect on their strengths for those who did not complete the VIA survey beforehand
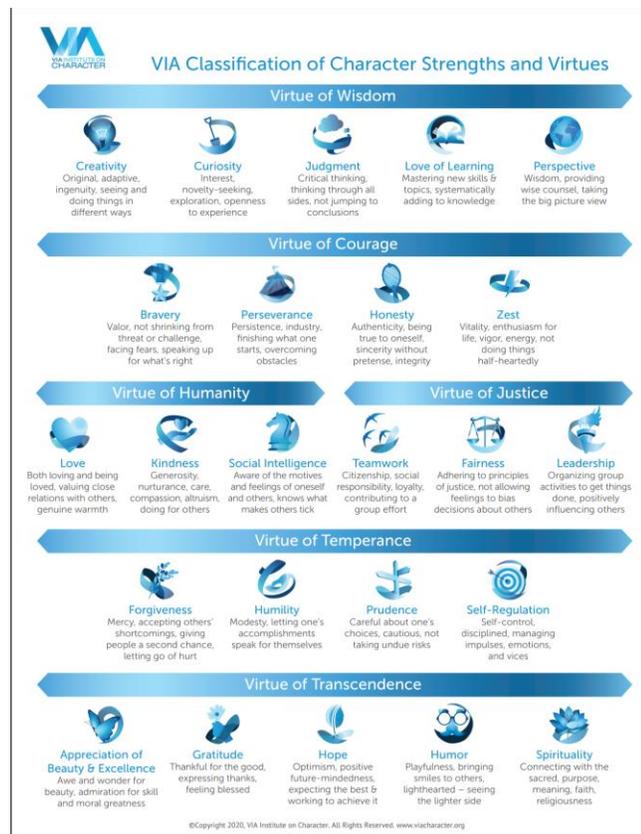
Attendees were then instructed (2) to help/coach each other to identify and categorise

their best strengths (after providing evidence-based information about strengths in line with

Driver, 2012; Magyar-Moe, 2009; Rogers, 2012; Seligman, 2013). One of the coaching

principles is that the client (in this case, the participants) is resourceful and able to find his own

answers (Driver, 2012; Rogers, 2012). In this step, participants also listed their three to five main interests (e.g., using technology, teaching, sports) and motives (e.g., friendship, personal growth) on the space provided in their workbook. To facilitate the person analysis, I provided an overview of how strengths, interests, and motives can be described and recognised (e.g., based on the positive psychology literature; Magyar-Moe, 2009; Seligman, 2013) at the beginning of this step. In agreement with Van Wingerden, Bakker et al. (2017b), participants also considered, through a group discussion, their contribution and relatedness towards their team, as well as team and organisational achievements and things of which they were proud. This latter aspect was seen as essential to counteract possible "dark sides" of job crafting (e.g., craft one's job for self-interests irrespective of others' interests or needs; see Nayani, 2017) by ensuring workers positioned their work identifies in a team rather than individual context. Participants were given the time to write some notes on their workbook about how their job is connected to their colleagues' jobs and which job changes would be harmful to their colleagues.

- **Step 3: Job Analysis**

In agreement with van den Heuvel et al. (2015), Van Wingerden Bakker, et al. (2017a,b), Kooij et al. (2017), Demerouti et al. (2017), Berg et al. (2013), and, more recently, Hulshof et al. (2020) and Kuijpers et al. (2020) participants performed a job analysis aimed at helping them in (1) clearly identifying their tasks, resources, and demands (i.e., both hindrance and challenge demands) and determine which of these they could change, increase, modify or perform differently. The job analysis also aimed to help participants recognise (2) how (and where) they were investing their personal resources and how they could use their energies better. Participants were encouraged to reflect on (3) what could realistically be changed in their jobs (i.e., participants were encouraged to be realistic and plan changes according to their jobs

requirements). Namely, it was underlined that "we do have tasks to accomplish. It is how or when we accomplish our duties that can help us to improve our jobs". In this step, attendees identified (4) where (i.e., in which tasks, actions, behaviours) they could increase the use of their abilities and interests, and (5) in which part of their job change would be most beneficial (e.g., making changes to tasks rarely performed would not be particularly beneficial). Finally, (6) the job analysis wanted to stimulate their reflection on the elements of their job that have the greatest significance (i.e., cognitive crafting).

By integrating the previous literature (and adding new theoretically relevant elements), the following steps were followed to complete a job analysis (note, a template with instructions were provided on the workbook as shown in Appendix 1). First, participants listed their personal, social, and job resources (definitions and examples were provided to facilitate understanding)[17]. Subsequently, participants summarised their tasks and duties and classified them as small, medium, and large in terms of urgency, importance (i.e., a large task is something that is performed regularly and that it is crucial to accomplish one's job; Kooij et al., 2017; Van Wingerden, Bakker, et al., 2017b) and amount of energy and attention the tasks required (Berg et al., 2013). Participants also classified the actions and behaviours needed for the job (e.g., calm down customers, ask for customers' payments, etc.). This was seen as a necessary aspect to help (also but not only) those employees who performed a limited number of tasks to craft their job (e.g., change how they perform the tasks by increasing the use of strengths). Real-life examples were provided in the workbook and the presentation.

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[17] In this step, I found it helpful to leave participants some time to voluntarily share what they wrote (e.g., some participants knew structural resources offered by the organisation that others did not know).

In order to foster a mindset supportive for job crafting and acknowledge the malleable nature of their jobs, participants were encouraged to view their tasks as flexible building blocks that can be moved and changed (Berg et al., 2013). Subsequently, in agreement with the JD-R model (Bakker & Demerouti, 2007, 2008, 2014; van den Heuvel et al., 2015), participants further broke down their tasks and categorised them as hindrance and challenge demands (definitions and examples were provided). Again, employees performing a limited number of tasks considered, in particular, the actions and behaviours required for their job and categorised them according to whether they perceive the actions as hindrances or challenges. For instance, some agents perceived providing emotional support to customers as a challenge. Others perceived the same behaviour as a hindrance. This step emerged as very useful to (subsequently) help employees identify job crafting goals such as boosting one's emotional intelligence to refine a particular strength and achieve specific work goals. (Or, conversely, to cope better with required stressful actions/behaviours by using specific resources like training opportunities or changing how (or when) the actions were performed). Finally, participants developed a personal work statement to analyse (and have a clear idea of) the aspects of their job that give them a sense of purpose (this exercise aimed to help them engage in cognitive crafting subsequently). An exercise retrieved from Magyar-Moe (2009, p. 174) was used to help workers develop their personal work statement (Table 4).

Following the job analysis, employees had a template with a clear map of their jobs, their tasks, their demands, resources, (actions and behaviours), as well as a cognitive awareness of the elements of their jobs that have the most considerable significance for them. This template represented a valuable tool in the following steps and assists workers in ideating a job crafting plan (e.g., van den Heuvel et al., 2015).

Table 4

Personal Work Statement Exercise retrieved from Magyar-Moe (2009, p. 174)

Please answer the following questions. *Write fast, don't worry about spelling, grammar, or logic. The objective is to let your thoughts flow. When you are done, go back and edit this to create your own personal work mission statement.*
• What is it that you believe you do that makes a difference to other people?   • Why do you do what you do?   • What is it that you believe you do that makes a difference to customers and/or colleagues at your workplace?   • In what way is your work important to help the organization achieve its goals?   • Why do you do what you do in your workplace?   • Consider again the strengths that you put into action while doing what you do.
After answering these questions, please develop your personal work mission statement in the space provided. *It can be as short or long as you want. Some examples were provided (retrieved from Magyar-Moe, 2009, p. 175): Police Officer: "To help people understand lawfulness and to provide them security in their neighbourhood communities." Clothing Salesperson: "To help people look and feel their best."*   _____   _____   _____

- **Step 4: Job Plus Person Analysis**

The job plus person analysis aimed at helping employees reflect on (and integrate) the

elements that emerged from the previous two steps to identify how they could re-shape their jobs

and better match their tasks and responsibilities at work to their strengths, interests, motives, and

needs. Before performing this step's exercises, tips and examples of how P-J fit can be improved

were provided to participants (through the presentation and workbook; Appendix 1).

Subsequently, the following steps were performed:

1. Participants identified what job tasks (and associated actions/behaviours) best reflected their strengths, motives, and interests (e.g., Kooij et al., 2017; Van Wingerden et al., 2017; see also Kuijpers et al., 2020). They also identified what tasks gave them a sense of purpose and could emphasise (i.e., spend more time, energy, and attention in; Berg et al., 2013). Some questions were asked to stimulate reflection (adapted from the positive psychology literature and job crafting theory, i.e., Berg et al., 2013; Magyar-Moe, 2009). Participants reflected on these questions for a few minutes. They then marked the tasks that reflect (and in which they can use) their strengths, motives, and interests with the letters S, M, I (i.e., strengths, motives, and interests) to help them perform the subsequent exercise.

Table 5

The job plus person analysis. Part 1

Please copy the table with your strengths, motives, and interests on the paper provided and keep it next to your job analysis map. *Consider:*

> ➢ *In which tasks, actions, and behaviours can you use your strengths?*
> _____
> ➢ *Which tasks, actions, and behaviours reflect your interests and motives?*
> _____
> ➢ *How can you make even better use of your strengths and motives in these tasks?*
> _____
> ➢ *Which tasks give you a sense of purpose and can you emphasise (spend more time, energy, and attention) without affecting other vital tasks?*
> _____

Reflect on these questions *for a few minutes and then mark the tasks which reflect (and in which can use) your strengths, motives, and interests with the letters S, M, I (i.e., strengths, motives, and interests), respectively.*

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2. Subsequently, in agreement with job crafting theory (i.e., Berg et al., 2013) and evidence-based learning practices (Fry et al., 2008), participants worked in pairs to help each other reflect on how specific tasks (particularly hindrance demands and actions) or how these were performed and organised could be changed (or re-organised) to reflect their strengths, interests, motives, and needs best. Similarly, they helped each other consider what new tasks boxes (i.e., challenges) could add to their jobs according to their strengths and motives (adapted from Berg et al., 2013). Simultaneously, they identified what resources they could use or increase to better match their jobs with their strengths, interests, and needs (e.g., use particular development opportunities). They also helped each other reflect on what tasks they could emphasise (i.e., spend more time, energy, and attention) to increase meaningfulness. The following exercise was used, as shown in Table 6.

Table 6

Job plus person analysis. Part 2: Pairs Coaching Exercise (A template was provided in the workbook)

• ***Work in pairs*** *and write some thoughts (space provided on the workbook). Working in pairs, help each other answer and reflect on the following questions (see examples to assist you in this task). After, please take a few minutes to briefly write what you answered to your colleague and any reflection which followed the discussion.*	
1. **Looking at those tasks in which you can use your strengths, how can you make even better use of your strengths in these tasks?**	*(e.g., "I can focus on active listening while handling customers calls and use my coaching skills to understand their needs and solve the issue efficiently").*
2. **How could you use your strengths, motives, and interests in those tasks where you are not using them?** (In particular, focus on how you can use your abilities and interests to cope better with those tasks and actions which you find stressful).	*(e.g., "I can use my emotional intelligence to establish quality relationships with my colleagues and enjoy teamwork more.").* *(**Continued**)*

3. **Which tasks (and behaviours) can you modify or re-organize (and how) to better reflect your strengths, motives, and interests and meet your needs?**	*E.g., (1) "I will set a specific time to answer emails not to worry about them while doing other important tasks which I enjoy (e.g., helping clients/ writing reports)". (2) "I can re-organize specific tasks to make these less stressful and better match these to my preferences/needs. For instance, instead of trying to manage as many calls as possible by quickly (and more poorly) addressing customers' needs, I will provide quality service by addressing more thoroughly each call even if this means taking fewer calls (but it will mean solving more issues by enhancing quality).*
4. **What new tasks boxes (challenges) could you add to your jobs according to your strengths, motives, and interests?**	*E.g. (1) "I can help my colleague who is struggling to write reports and use my passion for writing and for helping others to establish a better relationship with him." (2) "I can take the leader's role in a new project and practice my leadership skills to grow in my job."*
5. **Which tasks give you a sense of purpose and can you emphasize (spend more time, energy, and attention) without affecting other important tasks?**	*(e.g., [a gym coach] "I can spend a few minutes while training clients to educate them on healthy dietary practices to help them be healthier and to feel a sense of purpose by helping others improve their well-being").*
6. **What resources can you use or increase to better match your work with your strengths, motives, and interests, and meet your needs?**	*E.g., (1) "I can ask my manager for feedback about the project I have designed to improve my organization and planning skills (my strengths)." (2) "I will reach out my best colleagues when feeling under stress and ask their support or just have a chat with them to regain energy."*
7. **Further reflection following the discussion with you colleagues?**	

- **Step 5: Personal Job Crafting Plan**

In Step 5, based on previous steps' experience and knowledge, participants developed a personal job crafting plan (a template was provided in the workbook) to cultivate meaningfulness in their jobs and P-J fit. In agreement with the thesis operationalisation of job crafting,

participants identified specific situations they would like to craft over the following four weeks

(in agreement with Van Wingerden, Bakker et al., 2017b, and the theory of proactive goal-

settings; Parker et al., 2010) towards the five outcomes presented in Table 7. (Note: participants

also considered and listed which resources and strengths they would have used and could assist

them in putting the plan into action).

Table 7

The five job crafting outcomes towards which participants set realistic goals

Outcome	Examples of Job Crafting Goals*
➢ **Increase challenging tasks** (i.e., add new challenging building blocks) that best reflected their strengths, motives, and interests. [Participants could also set a separate plan (and specific actions) to increase the use of their strengths, interests, and motives where they are already using them (referring to what they answered in Step 3). They also considered how to emphasize (spend more time, energy, and attention) those tasks which give them a sense of purpose.]	❖ (Call Centre). "Next week, I will ask my manager to handle difficult cases, and practice my persuasion and negotiation skills to solve these cases at the first call." ❖ (Police) "This week I will start approaching third-party contacts to try and better manage these, put into practice my people skills, and to build my negotiation skills (retrieved from van den Heuvel et al., 2015, p. 518).
➢ **Modify (or re-organize) the way of working on stressful tasks (hindrances)** to cope better with them (e.g., learn new skills or change the way of performing the tasks to reflect their strengths, interests, and preferences better). **(Or) Use specific resources** to cope better with hindrances.	❖ (Call Centre) "I will focus on active listening while handling difficult customers' calls and use my coaching skills to solve their issues quickly." ❖ (Call Centre) "I will take a resilience-building course to handle a large number of calls better." ❖ (Police) "I will set one hour per day to answer the emails, and I will not check them until then so that I do not worry about new emails while doing other important tasks."
➢ **Modify the relational boundaries of their jobs** by building new relationships, reframing existing relationships or adapting relationships according to their interests, motives, and strengths (Berg et al., 2013). [In agreement with the information participants received in Step 1, participants could choose (a) to build new relationships. (b) To re-define existing relationship (e.g., spend more time with favourite colleagues;	❖ (Call centre and Police) "I will increase interactions with people of other departments to expand my social network at work and establish high-quality connections that can also be valuable to perform better my job or to receive (and give) help on specific issues."

interact differently with service recipients); or (c) to adapt relationships (i.e., provide to others valuable support or help to establish deeper relationships).]	❖ "Next week, I will ask new workers if I can be of any help with useful tips and practice my mentoring skills." ❖ "I will help my colleague in her new project to establish a deeper relationship with her."
➢ **Increase the use of personal, social and job resources** (definitions and examples were provided).	❖ (Call Centre): "I will ask my supervisor to change my shifts (i.e., use the opportunity of flexible working) to spend quality time with my daughter when she finishes school." ❖ (Call centre and Police) "I will participate more in social events at work to develop a stronger social network which can help me during difficult times and to put into practice my teamwork skills in new projects." ❖ (Police) "Next week, I will ask my supervisor whether there are courses available on stress management or ask his help to cope better with stress and, at the same time, I will ask him feedback on the traffic plan I developed."
➢ **Modifying the cognitive boundaries of the job** (Berg et al., 2013).	*Expanding perceptions.* ❖ (Call centre and Police): "I will print my work mission statement and record daily events that remind me of the importance of my job." *Focusing perceptions.* ❖ (Call Centre) "I will remind myself (and stick a note on my monitor) of how much satisfaction I feel when I solve a customer's issue when facing difficult or angry customers." ❖ (Police) "I will remind myself that traveling alone (which I do not enjoy) is necessary to subsequently establish new third-party contacts and use my negotiation skills (which I do enjoy)." *Linking perceptions.* ❖ (Call centre and Police): "I will use team meetings to put into practice my experience (and passion) of playing team sports."

Note. In the workbook, further practical examples of job crafting goals were provided for each outcome.

Participants were encouraged to set one realistic goal for each of the five outcomes and carry out the plan over four weeks (in agreement with Kooij et al., 2017; Van Wingerden, Bakker et al., 2017b, and the principles of proactive goal settings, Parker et al., 2010).

- **Step 6: Ongoing Support**

A LinkedIn group should have been set to assist participants in asking colleagues or the researcher any questions and sharing any thoughts and experience. It was not possible, however, to implement this step. Most agents and team leaders reported not having a LinkedIn account. Everyone was contrary to use more personal social media (e.g., Facebook, WhatsApp) to stay in touch with the researcher. As an alternative follow-up to the workshop, I asked the resource planning and delivery team to send a follow-up email (about four weeks after the workshops) on my behalf with further information about job crafting. The email aimed to maximise the transfer of training (i.e., the extent to which the learning gained is transferred to the job; see Ford et al., 2018) in the experimental group's agents.

- **Step 7: Evaluation (after four weeks)**

Four weeks after the workshop, an evaluation session should have been held to discuss what job crafting activities had been successful, the benefits of these activities, and what obstacles participants had met in crafting their jobs. Simultaneously, this session should have been an opportunity to celebrate successes (in agreement with several previous interventions; see Figure 8 above). This step also aimed at allowing participants to share their experiences and what they had learned in the process. A further purpose was to encourage participants to review their job crafting plan monthly and add new goals and actions to maintain or enhance P-J fit and meaningfulness in the short, medium, and long-term. Unfortunately, it was not possible to schedule the evaluation session with agents (and team-leaders) as planned. We were told that it

was not possible to schedule a follow-up anymore as the organisation was experiencing high

demands. This represented a limitation compared to previous interventions where participants

had the opportunity to reflect on and evaluate the learning that occurred to consolidate the

knowledge gained and plan further actions (e.g., Demerouti et al., 2017; Kooij et al., 2017;

Kuijpers et al., 2020; van den Heuvel et al., 2015; van Wingerden, Bakker, et al. 2017a, b; see

Table 1). As introduced earlier, the large number of employees involved and the turbulent

context under which the organisation was operating presented some difficulties in the

implementation process, such as precluding the possibility of carrying out the last two steps.

3.2.2.2.   *The Management Development Intervention*

3.2.2.2.1.   *Introduction: An evidence-based coaching (experiential learning)*

approach to management development

Evidence-based coaching psychology is an emerging discipline that aims to enhance

(work) performance and well-being of individuals, groups, and organisations through the

application of behavioural science and the use of evidence-based coaching models grounded in

adult learning and psychological approaches (particularly positive psychology theory; Grant,

2006; Law, 2013a, b; Palmer & Whybrow, 2006). Several principles and arguments that can be

found in the coaching literature have driven the development of the management development

intervention. Guided by these principles, and theoretically grounded on Kolb's experiential

learning theory (1984, 2014) and principles of effective learning and teaching (e.g., Fry et al.,

2009), the intervention aimed to improve the managers' social skills (and increase the goal-

oriented use of these) and job design-related knowledge. It follows a discussion on these

coaching principles and arguments with reference to why they informed the intervention's

content and development, followed by an overview of the stages of this latter designed according to Kolb's experiential learning cycle.

3.2.2.2.2. *Coaching principles for management development*

Hamlin and Ellinger (2009) identified several conceptualisations and definitions of coaching in the literature. They clustered these definitions and conceptualisation according to the common meanings of the labels used by the various authors to describe coaching. Following content and thematic analysis, they propose that, by unifying the various perspectives and conceptualisations, coaching can be defined as "a helping and facilitative process that enables individuals, groups/teams, and organisations acquire new skills, to improve existing skills, competence, and performance, and enhance their personal effectiveness, personal development, or personal growth" (Hamlin & Ellinger, 2009, p. 18). According to the definition above and the authors, coaching aims to help individuals and organisations develop and perform through some forms of facilitation intervention or activity (Hamlin & Ellinger, 2009). In agreement with their findings and the coaching literature (i.e., Bond & Seneque, 2012; Driver, 2011; Law, 2013; Passmore, 2015; Rogers, 2012; Williams & Menendez, 2015) it can be said that the cornerstone principle of coaching is to facilitate growth (development, and learning) rather than directing it. As discussed below, there are good theoretical arguments in support of a facilitative rather than directive approach for individuals' development as well as to choose, particularly with managers, a method of development which facilitates (rather than drive) learning and growth and starts from the (coaching) assumption that individuals are resourceful and in charge of their own change.

In coaching, indeed, individuals are seen as resourceful, as responsible for themselves, for their growth, for overcoming their limitations and issues, find their own answers (which are

considered the answers that work best according to their individual needs, values, and differences) and achieve their goals (Rogers, 2012). They have the power to get things done and achieve sustainable changes, and the role of the coach or for using coaching is to enable people to drive their own change (Law, 2013). Coaching aims to empower people by assisting them in developing their confidence about being able to modify themselves and their behaviours and achieve positive outcomes (i.e., boost self-efficacy; Passmore, 2015) and unleash their resourcefulness and potential (Driver, 2011). Coaching, overall, does not aim (and considers it detrimental, as shown below) to tell people what to do or how to do it to achieve a given outcome (Rogers, 2012).

Holding managers accountable for their results and involving them in the developmental journey through the self-exploration of options and possibilities as well as through the conscious choice of actions (i.e., a coaching and learner-centred approach), was seen as preferable to more directive methods of development where a consultant, teacher, or researcher establish the boundaries of the learning experience and the pace, methods, and reasons to achieve established aims. Indeed, a rigid protocol and a directive, teacher-centred approach to management development may ignore individual differences in the preferred methods of learning (i.e., different individuals have different learning styles and preferences; Kolb, 1984) and affect the learning experience of some individuals and its outcomes (see also Fry et al., 2009). Moreover, a rigid protocol that does not account for individual differences and assumes a knowledge of the individual that only him/herself have might push learners in taking counterproductive actions. For instance, introverted and extraverted are energised and demoralised by different things, behaviours, and actions (Culp & Smith, 2001). Learning activities should keep this in mind to avoid alienating specific types of learners. Furthermore, and perhaps most importantly, a

directive, teacher-centred style of teaching or consulting may be perceived by managers as a threat to their status and sense of competence, to their autonomy, to their need of self-direction as well as to their sense of self-efficacy (i.e., the strengths of a person's belief to achieve the desired outcome) and self-esteem (Rock, 2008; Rogers, 2012).

According to Rogers (2012) and Rock (2008), directing people learning or giving them unasked and unwanted advice or feedback can be perceived as a way of patronising them. As a result of the perceived attack, individuals may become defensive and react with a fight or flight response which leads the sympathetic nervous system to divert the individual's energy away from the prefrontal cortex (where rational thinking and thus learning occurs) back in the limbic system (involved with processes needed for survival) to prepare the body to fight the perceived threat (Rogers, 2012; Rock, 2008; Swart et al., 2015)[18]. Not much learning can occur if people feel under threat because resources such as oxygen and glucose are diverted from brain areas associated with the processing of new information and ideas (Rock, 2009; Swart et al., 2015). Overall, people under a fight or flight response (such as when one's status is threatened) might think less rationally or creatively, and their focus might be on avoiding (i.e., not listening) or on confronting the advice, directions or teachings being given (Rock, 2008; Rogers, 2012). As introduced earlier, giving advice or feedback to someone might be perceived as claiming superiority and trigger defensiveness. The individual's sense of competence (and thus status; Magee & Galinsky, 2008) may be perceived as questioned, endangered, and attacked (Rock, 2009).

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[18] Note, it is currently debated whether the brain is structured according to the so-called "triune brain" (made of separate circuitry for survival, emotions, and cognitions), with some evidence in neuroscience suggesting a different structure and functioning of the brain (e.g., Barrett, 2017).

A threat to one's status might even cause pain and destabilise the individual's bio-psychological system. According to the findings of Eisenberg et al. (2003), social pain (i.e., comparing unfavourably to someone else or feeling socially excluded) affects the same brain areas associated with physical pain (i.e., the experience and regulation of both, share a common anatomical basis). Similarly, an unfavourable social comparison or fear of social embarrassment trigger the same brain mechanisms associated with a threat response (i.e., feeling of pain, a release of cortisol, amygdala activation; Hannibal & Bishop, 2014; Takahashi et al., 2009). Overall, in agreement with the coaching literature, I argue that a consultant, coach or researcher would be unwise in using a developmental method that is perceived as threatening to the managers' sense of autonomy, self-direction and (considering its relevance in the workplace), particularly status. According to Anderson and colleagues (2012), individuals' sociometric status (i.e., the admiration and respect people receive in their face to face groups) is positively associated with subjective well-being and positive emotions because people perceive to have more power, influence and control over the social (or work) environment. The perceived sociometric status may also affect the individual's self-esteem, sense of meaning, and purpose (Anderson et al., 2012).

In brief, the literature suggests that a perceived threat to one's status and sense of competence in the working context may not only limit his/her capacity to learn but can also lead to unfavourable consequences such as negative emotions and stress (Anderson et al., 2012; Rock, 2008; Rogers, 2012). These can subsequently further impact the individual's openness to learning and trigger a negative spiral of adverse outcomes at a biological (prolonged cortisol secretion; Hannibal & Bishop, 2014) and psychosocial level (i.e., negative emotions such as anger and fear can lead to dysfunctional social interactions, which can further perpetuate or even

worsen the negative emotions; Garland et al., 2010). Considered the delicate, intricated, and

tangled dynamics and consequences of status and power in organisations (e.g., status and

competence create power [and vice-versa], which influences hierarchy, which might legitimate

status differences and affect the individual's degree of influence over others; see DiTomaso et

al., 2007; Magee & Galinsky, 2008), an intervention which facilitates (rather than directing)

growth, and that starts from the (coaching) assumption that individuals are resourceful and in

charge of their own change, was seen as more promising and less threatening for one's status,

hierarchical role, need for self-direction, autonomy, and sense of competence than a more

directive type of development programme.

This reasoning line is particularly relevant given that the intervention aimed to improve

the managers' social skills and job design-related knowledge. Unless caution was used (i.e., by

using coaching principles), supervisors might have perceived that the researcher came to tell

them "how to do their jobs". Moreover, managers could be particularly prone to defend their

sense of competence, expertise, and status considered that these influence their power, their

authority, and the amount of influence they have over others (for a discussion on power and

status, see Magee & Galinsky, 2008). According to the arguments mentioned above, putting the

researcher at the same level as managers rather than in a position of expertise (and authority) and

adopting a learner-centred approach were considered top priorities for the intervention's

successful outcome. It was, indeed, made clear to managers (i.e., stated in the informed consent

and repeated in stage 1 of the intervention) that the researcher-manager relationship wanted to be

a partnership among equals through a dynamic and reciprocal process of learning and discovery

aimed at closing the gap between potential and performance. A definition, this last, which

reflects Roger's (2012) definition of coaching. This said, there are also other theoretical reasons

to take a non-directive, evidence-based coaching approach to assist managers in improving their social skills (and job design related knowledge).

Evidence suggests that it is favourable to drive individuals in setting self-concordant goals (objectives that reflect personal interests, values and sense of purpose, and are not pursued because of external pressures) and to establish their own implementation intentions (they set the when, where and how of responses leading to goal achievement; Koestner et al., 2002). Indeed, individuals who pursue externally driven goals that are not self-concordant are less likely to progress towards these goals than those who pursue self-concordant, self-set, consciously chosen goals and who have implementation intentions (Koestner et al., 2002; see also Schunk, 1990). Therefore, imposing objectives on people without holding them accountable for their results or involving them in implementation strategies may affect the chances of achieving them. Unmet goals can negatively impact the individuals' self-efficacy (unsuccess to a given work-related task undermines the confidence of completing similar tasks in the future; Bandura, 1977; Lunenburg, 2011). Individual's self-efficacy can further be weakened if people are told what to do to achieve a given outcome (as they are not held accountable for their results and develop a sense of dependency on the coach or consultant; Rogers, 2012). Conversely, self-concordant, consciously chosen goals boost self-efficacy and work engagement (Rogers, 2012). Self-efficacy is a crucial determinant of performance (Moen & Allgood, 2009). It affects the individuals' level of persistence, efforts, motivation, and energy, particularly in result-oriented tasks and the latter's likelihood of success (Bandura 1977; Locke & Latham, 2004; Moen & Allgood, 2009). Therefore, organisational interventions should aim to boost a person's self-efficacy (Moen & Allgood, 2009) rather than undermining it.

Based on these arguments and line of reasoning, in the intervention, I asked managers to set specific personal goals-plans during the workshops (within the broader aims of the intervention) according to their cognitions, attitudes and individual differences (more information below). In this way, the intervention aimed to boost (or at least not undermine) their sense of self-efficacy and status. For example, following a learning practice in which they gained more knowledge about the various social skills (called interpersonal and coaching skills to avoid misinterpretation with clinical interventions) and on leader behaviours associated with these (see next section), managers were asked to investigate their own cognitions about social skills and social support. They were prompted to analyse which social skills they were currently under-using or over-using and how. They evaluated which social skills they were skilled at and could use more, better, and especially, in a more goal-directed, purposeful manner (e.g., engage in behaviours that aim to lead to specific outcomes such as conveying positive affect and regard to subordinates). They assessed which social skills if used better or differently, would enhance their management style, the supervisory relationship and boost the level of social support they provided to workers. Managers were finally asked to evaluate how they could implement changes in their behaviour towards these ends and to set their own plans and actions as all as their priorities according to their vision and values. This coaching-based approach to management development was seen as a favourable method not only to achieve the desired outcomes by ensuring that managers were involved in goal setting and implementation (and thus were more committed toward their goals) but also to safeguard their self-efficacy.

Another principle found in the coaching and positive psychology literature is that focusing on strengths is more motivating and energising than focusing on weaknesses (Driver, 2011; Seligman, 2011). Setting a goal that aims to improve a weakness may lower morale and

motivation, thus minimising the chances of success (Driver, 2011). As introduced above, to help

managers enhance their best social skills (i.e., strengths) while reflecting on which social skills

they could use purposefully to enhance the quality of employees' job, they were prompted to

evaluate (1) in what social skills they were already good at, could further improve, and use in a

purposeful manner (i.e., engage in behaviours-actions aimed at enhancing the leader-member

relationships); (2) in what social skills they were good at but were currently under-using or using

poorly; (3) how much scope there was to use specific social skills in their jobs and towards the

intervention's objectives; and (4) how they could address weaknesses (adapted from Driver,

2011, strength-based positive coaching). This approach was seen as a favourable method to keep

managers motivated and engaged towards the intervention's aims by focusing on and using their

strengths.

The principles and arguments discussed above are embedded in the management

development intervention which stands, in line with the coaching psychology literature (i.e.,

Law, 2013; Turesky & Gallagher, 2011) and teaching and learning theory (i.e., Fry et al., 2009)

on Kolb's experiential learning cycle and theory as a theoretical framework.

3.2.2.2.3. *Kolb's experiential learning cycle as a theoretical basis for management development*

According to the coaching psychology literature, Kolb's experiential learning cycle and

theory can be used to elicit an individual's knowledge and growth (Law, 2003) and provides a

framework to assist managers in developing their skills (Turesky & Gallagher, 2011). Moreover,

Kolb's model is indicated as relevant for work-based teaching and learning activities (Fry et al.,

2009). Optimal learning occurs when the learners' learning experience balances the four stages

of Kolb's learning cycle, namely, concrete experience, reflective observation, abstract

conceptualisation, and active experimentation (Abdulwahed & Nagy, 2009; Mobbs, 2006). In the context of adult development, the four stages can be structured as follows to enhance the learners' experience (see Mobbs, 2006).

First, learners encounter a concrete experience or task (i.e., they collect knowledge and information, face a new experience or reinterpret existing experiences). A vital aspect of the stage is to encourage individuals' active involvement through elements such as discussion, icebreakers, problem-solving, and team games (Mobbs, 2006). The second stage involves reflective observation. In this stage, learners reflect on the first stage's experience, what can be learned from it, and the information gained. In the third stage (abstract conceptualisation), learners theorise on the knowledge and experience acquired. What does that knowledge mean, and what conclusions can be drawn from it? Feedback from others can be constructive in this stage (Fry et al., 2009; as shown below, pairs coaching was planned in this stage). In the fourth stage (action or active experimentation), learners plan how they can put into practice what they learned and experienced and execute the plan (Abdulwahed & Nagy, 2009; Fry et al., 2009; Law, 2013; Mobbs, 2006; Turesky & Gallagher, 2011). Based on the learning gained in the process (plus relevant initiatives implemented such as follow-ups), the experiential learning cycle then starts again as a continuous process (Fry et al., 2009).

Kolb's learning cycle (revised from Law, 2013 and Mobbs, 2006) was used as a theoretical framework (in which the coaching principles introduced above are embedded) for the management development intervention (Figure 11).

Figure 11

The learning cycle for management development developed by the author
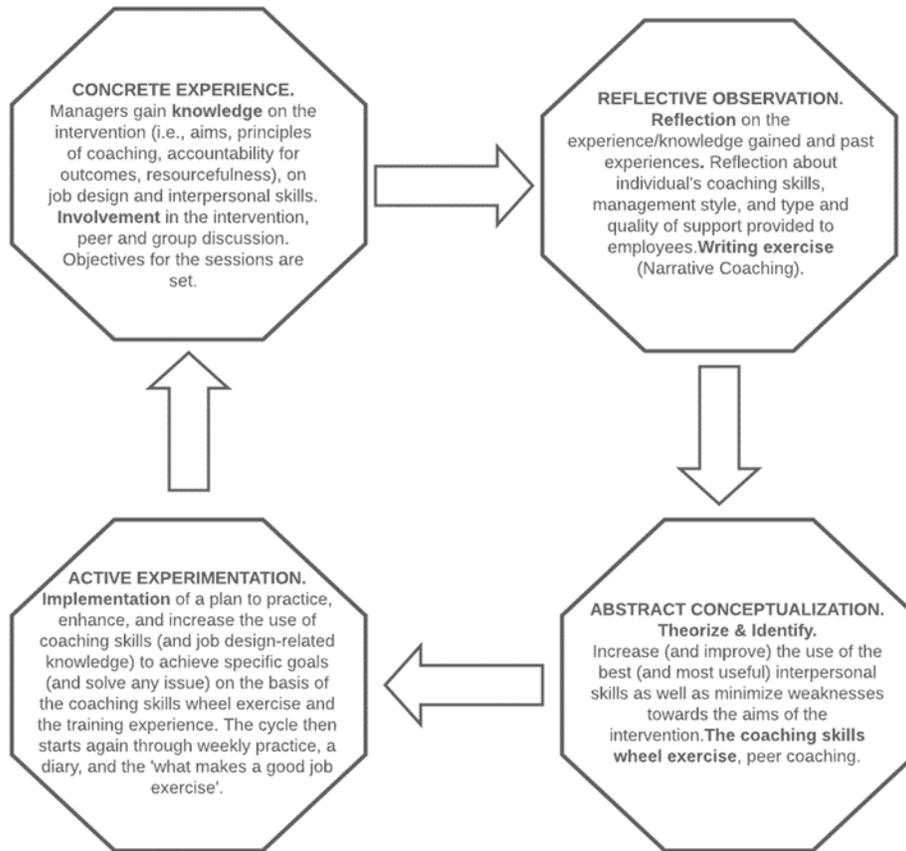
The following table presents an overview of the intervention's various stages (further details were provided in the workbook developed for participants; shown in Appendix 2).

Table 8

Overview and stages of the Management Development Intervention

Overview
❖ **Training Background and Scope**
Scientific evidence has provided a robust set of guidelines that can help managers improve the quality of workers' job, job satisfaction, and well-being (Ogbonnaya & Daniels, 2017; Parker, 2014). This training aims to inform the participants about the features that make quality jobs, enhance the managers' job-design related knowledge, and help them use their best coaching and interpersonal skills to put this knowledge into practice towards the intervention's general aims. The training aims to assist managers in identifying specific actions to enhance their relationships with the workers, the support they provide to them, the quality of the job characteristics available to employees, the opportunities available for employees to craft their job, and to improve workers' well-being, coping efficacy, and job satisfaction.
❖ **Training Method**
Principles of coaching psychology have guided the development of the training (see above). The aim of using coaching principles is to facilitate learning and growth rather than directing it and engaging the participants in a process of self-discovery and personal development. Accordingly, most exercises ask managers to reflect on their experience and abilities and tap into their resourcefulness and strengths to achieve specific goals to improve workers' jobs and well-being. Kolb's experiential learning cycle (Figure 11 above) has been used as a theoretical basis to develop a set of particular learning stages.
❖ **Training Stages**
Stage 1. Concrete Experience.   ***Aim of the stage:*** *Encourage participants' active involvement in the experience of the training.*   *Participants gain knowledge about the intervention, its objectives, and delivery method (i.e., coaching-based). Some key facts are presented about the features that make quality jobs as well as about the influence of managers' behaviours on the workers' well-being. Participants are encouraged to engage critically with the information presented and reflect on how they can use this information (and the training in general) to improve their relationship with the workers and address any issue they are encountering with them. Managers are encouraged to be involved fully and without biases in the experience of the intervention. A team-based discussion (also aimed at breaking the ice and "involve managers in the experience") is held about the aims of the intervention as well as on topics such as social support, quality jobs, and leader-member relationships.*
▪ **Stage 1 steps:**

I. Introduce the intervention and the objectives of the training

   - Why is the intervention important? Reduce stress, absenteeism, improve well-being and performance.
   - Main objectives: use the available knowledge being presented and the experience of the training to identify specific actions that managers can take to improve the manager-subordinate relationship, the quality of workers' jobs, the support available for workers, enhance their well-being and performance (and as a result also their own job satisfaction and well-being).
   - Method of delivery of the training: dynamic and reciprocal process of learning and discovery.

II. Assist participants' focus by identifying some personal objectives for the training (the process of setting goals directs attention and affects behaviour, Rogers, 2012). (5-7 minutes)

   - Individual exercise on the workbook which asks managers to reflect on this training and on what would be the best use of this time.   *(Continued)*

Five (coaching-based) questions are asked: Think of your work and your relationship with employees. 1. What is working best in your relationship with them? 2. What is not working so well? 3. Can you briefly describe any issue/s and explain how this is affecting you and them (or some in particular)? 4. Ideally, what would need to change to solve the issue/s? (please consider also how your own behaviour could change to address the issue/s). 5. What would you like to change, learn, understand, improve by the end of this training? (even small changes can make a big difference!)

- The participants write the answers, and we return to these at the end of the training. The aim of returning to these answers at the end of the training is to assist participants (1) in identifying whether they would change or add something to the answers following the experience of the training (thus further encourage reflection, abstract conceptualization, and, as follows, active experimentation). And (2) to set a specific plan (i.e., active experimentation) to address the answers given here (i.e., set a plan to address any issue in the relationship with workers) in the light of the experience gained during the training. While asking these questions is important to direct focus and attention at this stage, setting a plan to address them is preferable in the final stage of the training (i.e., active experimentation).

III.   Present (and discuss) some key facts (i.e., see Ogbonnaya & Daniels, 2017) on the features that make quality jobs (table below) and on the influence of managers' behaviours in determining the quality of employees' jobs and their well-being (see also thesis introduction). Participants are encouraged to view jobs as malleable and not as fixed entities. Namely, they consider that work can be shaped (e.g., by changing the job characteristics) to make jobs more motivating, purposeful, and meaningful (e.g., Parker, 2014). That is, specific actions can be taken to shape the workers' jobs according to certain features (i.e., take actions to ensure that jobs do have these features) that can increase their job satisfaction and well-being. Evidence is presented about key elements that can enhance workers' work engagement, job satisfaction, performance, and well-being (e.g., increasing resources, reducing or helping employees cope better with their demands; i.e., Bakker & Demerouti, 2014). An introduction to job crafting and how this can help employees improve the quality of their jobs (i.e., Daniels et al., 2017; Gordon et al., 2018; van Wingerden et al., 2017) is also presented.

- Pairs and group discussion ("ice-breaking", "fully involve managers in the experience"). Discuss the following (in pairs, then share with the group): To what extent are the features that make quality jobs established in your workplace? What, if anything, is hindering their execution? How could the application of these features be improved?

➢ *The what makes a good job table from the workbook provided.*

✓ **The features of quality jobs (in red those features that managers can influence more easily).**
While reading them, consider what could you change in your workplace to ensure these features are in place.

Reasonable work demands and working hours.	Autonomy and control over daily work decisions.	Use of skills. (Employees use a variety of skills at work).	Job security
Positive relationships and effective communication with managers.	Access to development opportunities.	Variety in tasks. (Employees have different tasks to perform or change the type of tasks they perform regularly).	Structural empowerment (policies and practices that allow employees to make beneficial changes to their jobs.
Support from managers (i.e., feedback, emotional support) and colleagues.	Psychological empowerment (Individuals feel competent and appreciated).	Input into decisions that affect how, when, and what work is accomplished.	Fair performance management and reward systems.

(Continued)

IV.   Present the current research's recipe to improve the quality of workers' jobs (i.e., enhanced job characteristics, an environment supportive for job crafting), the manager-subordinate relationship, and the support available for workers. Namely, purposefully use the job-design related knowledge gained (i.e., the features that make quality jobs) and one's coaching and interpersonal skills with the purpose of achieving valuable goals (e.g. convey positive regard and motivation to employees, provide them more autonomy; specific exercises provided in the following stages).

- **A table** (adapted from Riggio & Reichard, 2008) is provided, which shows specific interpersonal skills and provides examples of associated managers' behaviours that can be used/improved towards the intervention's aims.

Motivational Expressiveness	Inspiring and motivating employees. Transmit motivation and regard. For example, being able to transmit enthusiasm, optimism, positive regard. Share a compelling vision of the future.
Emotional Control	Regulating and masking the expression of negative, inappropriate, or strong emotions (e.g., masking anger when this might lead to a negative outcome such as de-motivating a worker who made a mistake accidentally).
Relational Sensitivity	Establish and maintain relationships. Understanding employees' feelings, needs, and non-verbal behaviour and request (i.e., understand what employees are signaling but not saying. An employee might show signs of tiredness when he arrives at work, indicating that he is having personal issues).
Verbal Expressiveness	Coaching, mentoring, public speaking, and persuasion. Engage and involve others in communication, saying the right thing, being clear, and ask thought-provoking questions that facilitate learning and growth.
Social Sensitivity	Active listening (being fully focused in a conversation), present oneself in an appropriate manner according to the social context (e.g., being able to regulate and monitor one's behaviour according to situations and people). Being able to understand social norms, situations, and roles.
Behavioural Control	Being sensitive and tactful. Have, develop, and convey confidence as a leader and in social contexts. Role playing and leader impression management.

> ℹ **Stage 2. Reflective observation.**
>
> **Aim of the stage:** *Encourage reflection on the experience and information gained in stage one. Reflect on what can be learned from the previous stage.*

The participants are encouraged to reflect on their own coaching and interpersonal skills and behaviours in relation to their relationship with employees and their jobs. **The following questions are asked to stimulate reflection (space is provided on the workbook to write the answers)**:

- Which (among the skills in the table provided in stage one) are your best skills (i.e., strengths); what skills are you using or under-using and how are you using them?
- What are your weaknesses?
- What coaching/interpersonal skills you believe are most useful according to your role and your team?
- Which skills, behaviours and attitudes are most useful to improve the quality of workers' jobs and the quality of support you provide to them (consider the features making quality jobs)?
- When, in your experience, the use of specific interpersonal skills led to positive (or negative) outcomes such as to improvements in employees' jobs?

A writing exercise (i.e., an adaptation of narrative coaching; see Drake, 2010; Law, 2013) assist managers to reflect on these questions, crystalize the knowledge gained in stage 1, and prepare to stage 3.

➢   **Stage 2 Writing exercise**

- **Narrative Coaching (15 minutes)**

Write (space provided on the workbook) as many stories or examples you can think of when the use of the interpersonal/coaching skills we have seen (table p. 11 of the workbook) was useful to improve the quality of

employees' jobs, your relationship with them, and the support you provided to them. Please consider the following examples to guide you in this task. If you cannot recall any instance when you used these skills, please invent a story in which certain interpersonal skill lead to a positive outcome as the ones mentioned earlier.

Example 1: "I was very upset and angry because of the mistake John made. But I realised that he is having personal issues and that he was extremely sorry about the mistake (i.e. relational sensitivity) and that shouting at him would have been only counter-productive and undermined our relationship (i.e. relational sensitivity). So, I masked my disappointment (i.e. emotional control) and asked him how I could help him not repeating the same mistake again and what would need to happen for that mistake not to be repeated in a very calm and supportive way (i.e. use of coaching/mentoring; verbal expressiveness and motivational expressiveness). He was surprised by my reaction, and I could feel true empathy between us (i.e. relational sensitivity). He never made the same mistake again").

Example 2: "I realized that the team was de-motivated and that many employees had been having a bad mood (i.e. relational sensitivity). So, I decided to hold several meetings to understand the root of the problem. I took a "coaching approach" during the meetings (asking questions to encourage reflection and listening more than speaking; behavioural control, verbal expressiveness) and made sure to show my deep interest in knowing and addressing any issue (i.e. social sensitiveness, motivational expressivity, and behavioural control). I had to mask my disappointment when some of them criticized my decisions (i.e. emotional control). But I knew that if I showed my displeasure, they would not have shared their real thoughts (i.e. relational sensitiveness and social sensitiveness). I had to step up and act as a leader sometimes though, to ensure the discussions were productive and directed towards clear and realistic solutions (i.e. social sensitiveness, behavioural control) while of course ensure they felt listened, included and motivated (i.e. motivational expressiveness). Overall, the meetings were very beneficial to improve the mood of the team and discover and address several issues I was not aware of".

Example 3: I was coaching John, an employee who is struggling to perform. He was un-coachable, however, refusing to make eye contact and answering my question lazily. I realized that my attitude during the meeting wasn't working. So, I changed my behaviour (i.e. behavioural control), sat straight on the chair and said, "I am willing to address any issue you might have, but I need to know the issue to do something". The change in attitude worked. He seemed surprised at first, but then he realized that he had the opportunity to address his issues and that his behaviour was not useful. He shared the problems he was experiencing, and I was able to take actions to help him.

ℹ️ ***Stage 3. Abstract conceptualization.***

Aim of the stage: *Theorise on the knowledge and experience acquired in previous stages and identify what conclusions can be drawn from it.*

The participants are asked (in light of the experience of prior stages) to determine how they can purposefully increase the use of their best interpersonal skills (while minimising their weaknesses) towards the aims of the intervention. Overall, based on the information gained about the features that make quality jobs and the impact of managers' attitudes on workers, participants will analyse (i.e. abstract conceptualization) what skills and associated behaviours they can use to better support the workers.

The final aim of this stage is to stimulate the purposeful use of one's best interpersonal skills (as well as of those interpersonal skills considered most beneficial towards the aims of the intervention) to enhance the quality of support provided to workers, the quality of workers' jobs, and their well-being. Participants are encouraged to develop a set of specific weekly actions to increase the use of their best interpersonal skills to achieve specific outcomes (see below).

A strength-based coaching exercise ideated by the author (adapted from the strength wheel exercise; i.e., Driver, 2011) forms the basis of this stage, which also involves peer coaching.

- **Stage 3 steps:**

➢ **The coaching wheel exercise developed by the author.**

The exercise seeks to assist managers in reflecting on and identifying (1) their best interpersonal and coaching skills. (2) Which skills are most useful for the aims of the intervention. (3) To what extent they are using their best skills purposefully (e.g., one can perceive to be skilled at conveying positive regard and affect but might realize that is not using this skill to motivate the workers). (4) How can they purposefully put into practice their best coaching skills to achieve positive outcomes (e.g., improve relationships, motivate certain employees)? What can managers do (i.e., study, reflection, practice) to become more skilled in those skills which they consider useful but do not excel?

(Continued)

I. ***The coaching wheel exercise (part 1): The coaching wheel.*** *Consider the centre of the wheel below as a score of '0' and the outer rim as a score of '10'. Place three marks in the segment associated with each coaching skill indicating (a) to what extent you are skilled at that coaching skill. (b) How much scope there is for using that skills in your job (or how useful is that skills towards the achievement of the training's aims). (c) How far are you using that skill in a purposeful manner (for instance if you are skilled in motivational expressiveness, are you using this skill to motivating or inspiring followers)? Please find on the following page the coaching skills table we saw earlier to assist you in this task (provided on the workbook).*
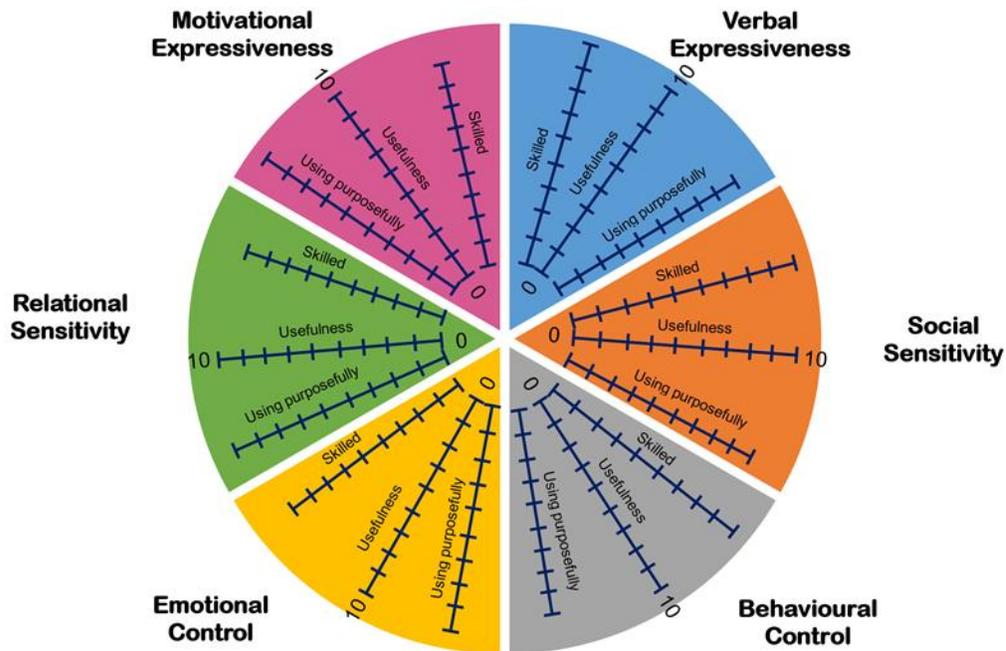
II. **The coaching wheel exercise (part 2). Reflection on the coaching wheel exercise and 1to1 coaching:** Working in pairs, in 10 - 15 minutes (5 - 7 minutes each) coach each other to identify how the identified gaps can be narrowed (i.e., this also in preparation of the following stage and exercises). Help each other reflect on the question below:

- Reflect on those coaching skills you are good at but not using in a purposeful manner. What behaviours and actions do you think will maximize the effect of these skills on the relationship with employees? (e.g., team meetings to motivate the team).
- What can you do (i.e., study, reflection, practice) to become more skilled in those skills which you consider useful but do not excel? For instance, what can you do to become more skilled in emotional control (i.e., regulating inappropriate emotions or stifling the expression of these)?
- The long-term goal is to maximize the use of the most useful and best skills to obtain specific and favourable outcomes.

III. **The coaching wheel exercise (part 3): Action.** Following the peer coaching please develop a set of specific weekly actions (space provided on the workbook) to close the gaps identified in the social wheel exercise, to increase the use of your best skills as well as to use your coaching skills to achieve specific outcomes (within the overall aim of the training).

- Example of possible activity: *"This week I will set two one-to-one meetings with the workers who are struggling with performance and use and practice my relational sensitivity (understand others' feelings and needs) by providing them coaching and focus on active listening with the aim of understanding what is not working for them and how can I help them (and thus improve our relationship)".*
- Please remember to review the list each week and identify new actions to close the identified gaps. The long-term goal is to maximize the use of the most useful and best skills to obtain specific and favourable outcomes.

(Continued)

ⓘ *Stage 4. Active Experimentation. Action.*

Aim of the stage: Assist participants put into practice what they have learned and experienced through the ideation and execution of a general plan.

Participants develop a general plan to facilitate the objectives of the intervention. A seven-step coaching-based exercise was developed **to assist managers in re-assessing, further conceptualising, and re-evaluating the training experience and developing a final SMART plan** *to improve the quality of employees' jobs (i.e., better job characteristics) and the employees' (and their own)well-being. Various elements from the coaching and positive psychology literature were integrated into the development of the exercise (e.g., problem-solving, imaginary, goal setting; e.g., Rogers, 2012; Palmer, 2008; Passmore, 2015).* **Finally,** *participants were asked to complete the "what makes a good job exercise" also developed by the author before the subsequent meeting (note, it was not possible to schedule this meeting due to organisational issues) and to stay in touch through a LinkedIn group to discuss ways to improve the quality of the employees' jobs.*

- **Stage 4 steps:**

➤ **Exercise 1: 7 steps to envision and plan new possibilities (note space was provided on the workbook to complete the exercise).**

I.   Return to the questions we asked at the beginning *("Think of your work and your relationship with employees. What is working best in your relationship with them? What is not working so well? Can you briefly describe any issue/s and explain how this is affecting you and them (or some in particular)? Ideally, what would need to change to solve the issue/s? (please consider also how your own behaviour could change to address the issue/s"):*

- Would you like to add anything to the answers provided there?
- Identify what are the issues, if any, in your team or with some employees, and what would need to change to solve them…List the main issues with the most pressing ones on the top of the list and write some thoughts on what would need to change to solve them.

II. Consider how could you enhance what is already working?...Write some thoughts (space provided) on what is already working and what could be done to enhance it further.

III. Think of how you can use the information gained today (i.e., knowledge of the features of quality jobs) in identifying actions to solve issues or improve things (steps 1 and 2). For instance, you might consider how to reduce the workload of those team members who are struggling with performance and motivation or identify how you can help them using a variety of skills at work.

IV. Reflect on what other goals can you set to improve the quality of supervisory support available for employees and enhance the quality of their jobs. For example, we have seen that autonomy and control over daily work decisions are important for employees' work engagement and well-being. A possible goal could be to provide more autonomy to team members to boost their motivation…List some goals (space provided):

V.   Draw a picture of the ideal outcome: Imagine the problems being solved, the new goals being achieved. *What's standing in the way of the realised outcomes? What do you see, hear, and feel? What has changed in your behaviour, in the workplace, and your team?* (We can draw some pictures of the achieved outcomes).

VI. List what actions have you taken to be there.

VII. **SMART goals planning**.
- Go through the previous steps and read what you wrote.
- On the basis of prior steps, use the table below to set a final plan to achieve short, medium and long-term plans to address any issue in your relationship with employees (or some in particular), enhance what is already working, and enhance the quality of their jobs (and yours). Examples are provided to facilitate the task (e.g., Specific short-term goal: "Improve relationship with John and Rachel through 1to1 weekly coaching to understand together what steps to take to improving their performance and job satisfaction").

(Continued)

> ➢ **Exercise 2: What makes a good job exercise (to complete before the next meeting).**

> I. Please rate to what extent each of the features making a good job is applied in your team and, if you can, identify specific steps to close the gaps identified, and note any barriers encountered.

> ***Extract from the "What makes a good job exercise" Table*** *(full Table provided in the workbook):*

Feature	Applied from 1-10	Actions to close the gap (please be specific and set time limits).	Barriers to closing the gap
Reasonable work demands and working hours.			
Autonomy and control over daily work decisions.			

🛈 *The Cycle continues:*

> I. *A LinkedIn group was set to stay in touch with participants and discuss anything relevant to the training.*
> II. *Team-meeting with participants 8 weeks after the training to discuss the results of the training, any issue encountered, and to identify what steps can be taken in the organization as a whole to enhance employees' work re-design and address any barriers towards this end.*

*Note that both these two final elements could not be implemented as (1) the organisation could not set a follow-up meeting due to high demands and low resources. (2) Most participants did not have a LinkedIn account and did not want to use other social media (e.g., Facebook, WhatsApp) to avoid merging personal and professional life.

3.2.3.   Measures

Note: The scales' items, the alpha levels at T1 and T2, and details about CFA are shown in the preliminary analyses-CFAs section (section 4.1.2.). The focal instructions[19] of the scales below were changed to reflect how participants had felt over the past two weeks.

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[19] The focal instructions represent the rating instruction which aims to direct the participants' focus on a given context (e.g., 'rate your experience in relation to the new IT system…'). Time-bound focal instructions lead participants' attention to the period within which they are requested to reflect concerning the item in question (e.g., 'rate how anxious you have felt over the past two weeks…' (Russel & Daniels, 2018).

- **Job Crafting**

The Job Crafting Scale (JCS, Tims et al., 2012) was used to assess crafting job resources (structural and social), hindrance demands, and challenge demands. The scale has shown good factorial, divergent, convergent, and predictive validity (Tims et al., 2012, 2013) and has been used in previous job crafting interventions (e.g., van Wingerden, Bakker, et al., 2017b). Participants answer the statements asking to what extent they engage in certain behaviours using a five-point scale ranging from (1) never to (5) very often. Examples are "In the past two weeks, I have tried to develop my capabilities" (increasing structural resources) and "In the past two weeks, I have made sure that my work is mentally less intense" (decreasing hindrance demands). Five items were added to the JCS to measure cognitive crafting using the internally consistent cognitive crafting subscale of the Slemp and Vella-Brodrick's (2013) job crafting questionnaire (JCQ). An example is "In the past two weeks, I have reminded myself about the significance my work has for the success of the organisation" (cognitive crafting).

- **Coping Efficacy**

The border that differentiates the psychological constructs of resilience and coping efficacy is blurred. According to Maier and Watkins (2010), "by coping is generally meant behavioural and psychological efforts to master, reduce, minimise, or tolerate aversive events" (p. 1). It follows that coping efficacy can be considered as the ability (i.e., efficacy) (or belief to be able) to adapt, master, reduce, minimise, or tolerate adversity and aversive events. Hartmann and colleagues (2019), in agreement with Luthar et al. (2000), define resilience as a dynamic process encompassing positive adaptation within the context of significant adversity" (p. 4). Similarly, according to Campbell-Sills and Stein (2007), "resilience refers to an individual's ability to thrive despite adversity" (p. 1019). It emerges that regardless of the etymological

choice of whether to name the ability to cope with and adapt to adversity and stressors as

resilience or coping efficacy, both might tap on the same psychological construct. Indeed,

according to Fisher and colleagues (retrieved from Hartmann et al., 2019), "resilience

mechanisms can best be understood as those experiences, reactions, and behaviours that

individuals apply in the face of adversity, such as certain coping strategies or emotional

responses" (p. 5). Resilience mechanisms can thus be conceived precisely as the efficacy in

coping with stressors, in other words, as coping efficacy. Not surprisingly, most of the scales

used to measure resilience in the workplace (e.g., Connor & Davidson, 2003) conceptualise

resilience as a capacity (Hartmann et al., 2019). Specifically, most of the items used to measure

resilience in the workplace reflect the manifestation of adaptation and positive behaviours

despite adversity (Hartmann et al., 2019), again arguably referring to coping efficacy.

Considering that the difference between coping efficacy and resilience is not clear cut and that

both might refer to the same individual ability to cope with (and adapt to) stressors and adverse

events, the Brief Resilience Scale (BRS; Smith et al., 2008) was used to measure coping

efficacy. The BRS was designed to assess the ability to recover or bounce back from stress

(Smith et al., 2008); in other words, the coping efficacy in or following stressful events or

situations. The BRS has shown good internal consistency (Cronbach's alpha ranging from .80 to

.91), convergent validity, and discriminant predictive validity (Smith et al., 2008). In the present

study, the items were modified (the inclusion of the term "at work" after each item) to reflect

coping efficacy in the workplace. Participants answer the statements using a five-point scale

(ranging from 1 = *strongly disagree* to 5 = *strongly agree*). Example items are "in the past two

weeks, I have bounced back quickly after hard times at work" and "in the past two weeks, I have

tended to take a long time to get over setbacks at work" (recoded). This said, in agreement with

Connor and Davidson (2003), it is argued that resilience (or coping efficacy) involves the ability to thrive despite adversity, namely, to progress towards goals despite hindrances. This aspect is not directly measured in the BRS, which is more focused on emotional resilience. Therefore, two items were added from the 10-item version of the Connor–Davidson Resilience Scale (CD-RISC; Campbell-Sills & Stein, 2007). The 10-item version of the CD-RISC has shown a high correlation with the original scale and high construct validity (Kašpárková et al., 2018). An example item is "in the past two weeks, I was able to achieve goals despite obstacles".

- **Meaning at work**

Seven items from the ten-items work as meaning inventory (WAMI; Steger et al., 2012) were used to assess meaning at work. The scale has shown high internal consistency and good convergent, discriminant, concurrent, and incremental validity (Stager et al., 2012). The WAMI represents one of the few attempts to clarify the construct of meaningfulness (Tims et al., 2016). In agreement with the WAMI and Wrzesniewski et al. (2013), meaning at work is operationalised as the perception of work as a constructive and valued activity that positively impacts others (and oneself) and makes life more meaningful. Examples of the items are: In the past two weeks… (1) I have felt that I have a meaningful career. (2) I have felt that the work I do serves a greater purpose.

- **Person-Job Fit**

In agreement with Tims et al. (2016) and Kooij et al. (2017), P-J fit is operationalised as a higher-order construct composed of the two facets of demands-abilities fit (DA) and needs-supplies fit (NS). The two three-item scales developed by Cable and DeRue (2002) to measure DA and NS were used to measure P-J fit. The two sub-scales have shown high reliabilities in Cable and DeRue (2002). Confirmatory factor analysis on the six-items DA and NS scales

revealed a good fit for the two-factor model and good internal consistency in Kooij et al. (2017).

The six-item scale has been used to measure P-J fit by Tims et al. (2016) and Kooij et al. (2017).

Participants answer on a five-point scale (ranging from 1 = *strongly disagree* to 5 = *strongly agree*). Examples are: In the past two weeks… (1) I have felt that there is a good fit between what my job offers me and what I am looking for in a job. (5) I have felt that my abilities and training are a good fit with the requirements of my job.

- **Challenge and Hindrance Demands**

Challenge and hindrance demands were measured with twelve items from the two eight-item scales developed by Rodell and Judge (2009) to assess challenge and hindrance stressors. The measures were based on previously validated scales (including Cavanaugh et al., 2000; Ivancevich & Matteson, 1980; LePine et al., 2004; Rizoo et al., 1970; retrieved from Rodell & Judge, 2009) and have shown high internal reliability (Rodell & Judge, 2009). Examples are: In my typical working day over the past two weeks…(Challenges) I have had to work on a large number of projects and/or assignments. (Hindrances) I have received conflicting requests from two or more people. Twelve items were selected out of the original sixteen to reduce the questionnaire length (i.e., minimise participants' cognitive load and fatigue). The items removed were either not relevant for the sample (e.g., "Today, I have been responsible for counselling others…") or reflected similarly worded items selected.

- **Job Resources**

In agreement with Tims et al. (2013), job autonomy, task variety, and opportunity for development were considered structural job resources; support from supervisors and co-workers were considered social job resources. *Support from supervisors*, *support from co-workers*, and *job autonomy* were measured with items from the HSE work-related stress tool. The scales have

shown high reliabilities (Edwards et al., 2008). *Job Variety* was measured with the four-items

task variety subscale of the WDQ (Morgeson & Humphrey, 2006; α = .95 when validated).

Participants answer on a five-point scale (ranging from 1 = *strongly disagree* to 5 = *strongly*

agree). *Opportunity for development* was measured with the validated three-item access to

development opportunity subscale of the CWEQ-II (Laschinger et al., 2001a, b). In previous

studies, the QWEQ-II showed Cronbach alphas ranging from .87 to .89 (Laschinger et al., 2001;

Laschinger et al., 2014). Respondents answer on a five-point scale (ranging from 1 = *None* to 5 =

A Lot) how much of each kind of (development) opportunity they have in the present job (e.g., to

gain new skills and knowledge).

- **Well-being**

Affective well-being (as the affective component of well-being) and job satisfaction (as

its cognitive) component were assessed to measure well-being. *Affective well-being* was

measured with Daniels' (2000) ten-item measure of affective well-being (D-FAW). The scale,

originally made of 30 items, has subsequently been shortened for use in organisational studies

(Russell & Daniels, 2018) and has shown Cronbach's alpha as high as .98 (Russell et al., 2017).

Although the scale has been previously used to measure momentary affective well-being (i.e.,

rate the extent to which you feel this way right now, that is, at the present moment), the focal

instructions can be amended according to the context and timeframe of the research (Russell &

Daniels, 2018). In agreement with Warr's anxiety–contentment and depression-enthusiasm

scales (retrieved from Wood et al., 2018) and according to the context and timeframe of the

present research, the focal instructions were changed to: "Thinking of the past few weeks, how

much of the time has your job made you feel…Calm, Active, Gloomy (etc.)". Respondents

answer on a six-point scale (1 = *not at all* to 6 = *very much*).

Job satisfaction was measured with the following item from the sixth European Survey of working conditions: "On the whole, in the past two weeks, you have been very satisfied, satisfied, not very satisfied or not at all satisfied with working conditions in your main paid job?" Single-item measures of job satisfaction have emerged as adequate to measure this concept (i.e., Wanous et al., 1997).

3.2.4.   Analyses

A set of preliminary analyses was conducted to evaluate the measures' psychometric qualities, factor structure, dimensionality, and distinctiveness (section 4.1.2.). Cronbach's alphas were calculated for each scale and subscales to determine the measures' internal consistency (Bland & Altman, 1997; Cronbach, 1951). CFAs were run on each construct separately to assess the measures' factor structure and dimensionality (Brown, 2015; Kelloway, 2017; Muthén & Muthén, 2010, 2012; Zyphur, 2019). Subsequently, CFAs with all the hypothesised factors were conducted to assess the fit of the proposed final model compared to competing models and evaluate the distinctiveness of the main variables and their discriminant validity. To this end, Chi-square difference tests (using the Satorra-Bentler scaled chi-square; see section 4.1.2.3. and Satorra & Bentler, 2010) were run. The hypotheses were tested using structural equation modelling (SEM) with manifest variables (Geiser, 2013; Haas et al., 2014; Kelloway, 2017; Lleras, 2005; Muthén & Muthén, 2010). More detailed information on the analytical approach

used (including information on the SEM approach used, modelling principles, estimators, data screening) and preliminary analyses are provided in the findings chapter[20].

3.3. Method Study 2

3.3.1. A note of caution

Study 2 was implemented in a Policing context. Before I proceed with the participants and procedures sections, it must be noted that Police officers participating in Study 2 experienced a vast amount of change during the seven months of data collection. Some teams changed their line managers. Some officers changed their team or location. There were systemic technological changes (e.g., the implementation of a new IT system that involved significant changes in procedures and day to day practices for some police officers). Simultaneously, officers experienced more extensive employment changes (i.e., changes in the pension scheme, sudden extension of the retirement date for some officers in the sample, generally, a decrease in resources and an increase in demands determined by budget cuts in public organisations; see Molina & O'Shea, 2020). Due to organisational issues, the control group's workshops were delayed by about two months (initially scheduled for September 2018, they were rescheduled at the end of November 2018), a factor (along with other incidents) that caused some delays in data collection. Several police officers in the experimental group could not attend the job crafting

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[20] The analytical approach of each study is presented in more detail in the respective findings' section. This was seen as preferable (particularly concerning the more extensive Study 1) to ensure a reading flow from the description of the analytical approach (i.e., modelling principles) and the preliminary analyses to the results sections. Different analytical approaches have been used in Study 1 and Study 2 (out of necessity due to the disruptions experienced in the latter and the smaller sample; see section 3.3. immediately below) with thorough preliminary analyses and full hypotheses testing carried out in the more robust Study 1.

workshop due to professional duties or emergencies (there was even a case of murder that

prevented several people from taking part in the workshop scheduled).

Notably, changes in teams' managers may have affected the responses of participants at

T2. For instance, specific teams in the job crafting condition initially had line managers who

voluntarily participated in supervisors' training. Immediately after the training, some managers

have changed their role and team. The change in management may have had an impact on T2

responses as some Police officers completed the T1 survey under the supervision of one line

manager and the T2 survey under the supervision of another. Similarly, one manager who

participated in the management training changed her team immediately after the training and

became manager of several participants who were initially allocated to the control group.

While great care has been taken to organise participants' groups (i.e.,

control/experimental) according to the latest information available (in line with Figure 12 below)

and remove some participants from the analyses (e.g., those who were in the experimental group

but could not attend the workshop) to ensure the findings are as unbiased as possible, Study 2's

method's was affected by unpredictable contingencies; accordingly, Study 2 results must be

taken with caution. Organisational interventions are not implemented in closed systems, in

laboratories. Navigating through change is needed when implementing 'real-life' interventions,

particularly when the aim is to look at outcomes over a relatively long period. To use a

metaphor, implementing an intervention in a changing organisational context is like trying to fix

a car while the car is moving. Skills are needed, but also a lot of luck not to find any bump on the

road that would make the job even more complicated.

Study 2 method and results should be interpreted in the light of the above and should be appreciated for reflecting the reality of organisational life and be understood in light of involuntary methodological limitations caused by unpredictable and unavoidable factors.

3.3.2. Participants and Participants Flow

Participants in study 2 were Police officers of specific units (i.e., rape investigation, child abuse investigation, adult abuse investigation, POLIT) within a semi-rural constabulary. Eighty-eight police officers (see below for details on procedures) were initially cluster-randomised into two groups according to their unit and location where they worked: an experimental group ($n = 60$) and a wait-list control group ($n = 28$). Participants in the experimental group would have attended job crafting training. Their supervisors would have attended the workshop for line managers (to facilitate job crafting and improve officers' well-being). Accordingly, the line managers (i.e., eleven supervisors) of participants in the experimental group were invited to participate in developmental training for supervisors.

Four supervisors attended the training for line managers (as introduced above, two of them changed their team soon after the training). In contrast, 36 police officers from the experimental group attended the workshop in job crafting. In total, 48 responses were collected at T1, and 47 responses were collected at T2 (Figure 12 below). Eight participants were excluded from analyses because they were initially in the experimental group but could not attend the workshop. Excluding these participants, 34 responses matched at T1 and T2. However, one participant completed the T2 questionnaire in total and about two-thirds of the T1 questionnaire; another completed the T2 questionnaire in full and the job crafting questionnaire only at T1. Therefore, for specific variables, the matching responses are $N = 33$ and 32. Of these, 25 were from people who attended the workshop in job crafting. Eleven responses were from people

whose line managers participated in the training for supervisors. To account for the changes in some managers' role, only responses from officers who had been managed continuously by the supervisors who attended the developmental training for six months before T2 data collection were considered in this category. Six responses were from people in the control group (i.e., no intervention). Eight responses were from people who attended the workshop in job crafting and who had managers who participated in the training for supervisors (i.e., top-down and bottom-up). Seventeen responses were from people who attended the workshop in job crafting and did not have a line manager who participated in the management development workshop (i.e., bottom-up only). Three responses were from people who had a line manager who participated in the supervisors' training but did not attend the workshop in job crafting (i.e., top-down only). As noted above, unpredictable contingencies have disrupted the initial allocation of participants and led to the situation illustrated in Figure 12.

Figure 12

Study 2 Summary of Participants Flow caused by unpredictable circumstances
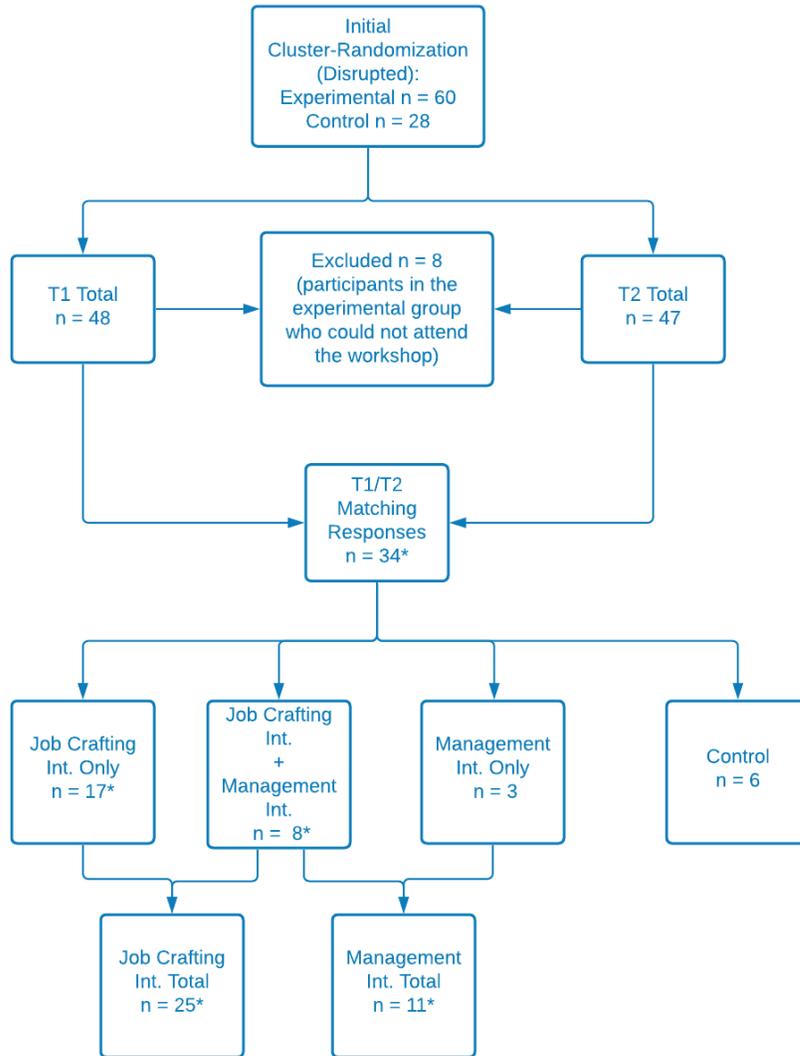
Note. * *One participant completed T2 questionnaire in full and about two-thirds of T1 questionnaire. Another participant completed T2 questionnaire in full and the job crafting questionnaire only at T1.*

Despite the disruption of the initial plans, the amount of data from

(1) officers who participated in the training in job crafting ($n = 25$)

(2) who had a manager who participated in the training for supervisors ($n = 11$)

(3) who received both interventions ($n = 8$), and

(4) who received no intervention ($n = 6$),

can be used and be useful to draw some indications about the effects of the intervention in a

context of change and austerity.

Participants whose responses matched at T1 and T2 ($N = 34$) were 50% female and 47%

male with a mean age of 39.44 years ($SD = 8.5$). The average job tenure was 12.06 years ($SD = 5.9$). Participants had worked under their current line managers' supervision for an average of

1.03 years ($SD = 1.2$).

3.3.3. Procedures and Context

Initial contacts were taken with the Senior Research Officer of the Constabulary.

Subsequently, I presented the research to a formal board of Senior Police Managers. Once

agreement had been granted to proceed with the interventions, other meetings were scheduled

with the senior managers of specific units to discuss practicalities and to gain information about

the context of the interventions and the organisational culture. Participants were cluster-

randomised according to their team and location where they worked (North/South). In total,

seven sessions were scheduled for the experimental group, and four sessions were scheduled for

the wait-list control group. One session was scheduled for team leaders of the experimental

group (only four attended out of twelve supervisors), and one session was planned for team

leaders of the wait-list control group. As introduced above, the wait-list control group sessions

were scheduled initially approximately three months after the first sessions of the experimental

group. However, the workshops were subsequently delayed for further two months due to the

high demands (and emergencies) experienced by the organization (this aspect has also caused

delays in T2 data collection).

Senior managers of the units involved made the attendance to training in job crafting

compulsory for their teams (survey completion was voluntary; see below). As with Study 1, the

mandatory attendance to the sessions represented an opportunity as well as a challenge (e.g.,

self-selection bias and effect can be excluded; nevertheless, some participants attended the

sessions without an interest in it). In particular, significant resistance was found in delivering the

workshops from police officers. They complained about a general worsening of their working

conditions and thought that a broader set of interventions was necessary, interventions to

enhance their working conditions from the top-down (and not from the bottom-up). Accordingly,

some police officers refused to participate actively during the workshop and shared their reasons

for doing so (e.g., discontent over specific aspects of their job). I made a significant effort to

ensure that the sessions were productive and did not turn counter-productive (by participants

sharing the negative aspects of their job or specific adverse events). Following the first

workshops, it was agreed to have a senior manager present to the seminars who could assist

Police officers in seeing the training's value, have a more positive mindset, and offer them

practical advice. For example, a senior manager could help officers who complained about a lack

of autonomy to identify practical ways to perceive and have more control over their jobs.

Another could remind officers of the resources available that they could use to enhance the

quality of their jobs.

In terms of data collection, three weeks before the first scheduled workshops, I sent an

email to all the participants with an invitation to complete the questionnaire voluntarily and with

a link to access the (online, anonymous) survey. Posters designed by the author had been previously sent to the participants with information about the study's procedures and goals as well as about anonymity and confidentiality. Participants were informed that participation was voluntary and that they could stop answering the questionnaire at any time. A link was provided, leading to a webpage with further information about the participants' data rights. Participants were asked to agree to take part in the research before continuing to the questionnaire. The survey included demographic questions and the pre-test measures of the variables under investigation (section 3.3.5.).

The follow-up was taken approximately four-five months after T1 data collection (as said above, delays have been experienced). As indicated in Study 1, there are no clear indications of the ideal time to evaluate the outcomes of a job crafting intervention (Dubbelt et al., 2017). However, the time lag between T1 and T2 data collection was significantly longer in the present study compared to most previous job crafting interventions where follow-ups were often as short as one or two weeks after the intervention (e.g., Kooij et al., 2017; van den Heuvel et al., 2015; van Wingerden et al., 2016). A longer follow-up allows a more robust evaluation of potential delayed effects of the intervention as well as to determine whether the effects of job crafting interventions do or do not fade away with time (Kuijpers et al., 2020).

3.3.4. Interventions

The interventions presented in Study 1 (section 3.2.2.) were also implemented in Study 2. Namely, at T1, police officers in the experimental group participated in the job crafting intervention and (four of) their line managers participated in the management development training. At T2, the interventions were delivered to the wait-list control group.

No meaningful differences were applied to the steps of the interventions compared to

Study 1. The only minor differences in the implementation of the job crafting intervention were

the following. (1) As introduced above, following the first sessions, it was decided that it would

have been beneficial to have a senior manager attending the workshops for Police officers in job

crafting[21]. Compared to Study 1, it was noted that the organisational culture in the context of

Police was different. A healthy camaraderie emerged from participants, and a senior manager

whom participants could view as 'one of them' was essential to facilitate the session and help the

researcher deliver his message. Moreover, it was noted that a less participative culture was in

place, and Police officers needed to consult with a senior manager about what was acceptable or

not to do in terms of job crafting. (2) Some of the real-life examples provided to help participants

identify potential job crafting actions were different from Study 1, and discussion with senior

managers (and police officers) was critical to identify beneficial and realistic examples to

provide.

As in Study 1, it was not possible to follow strictly Step 6 ('ongoing support'; i.e.,

establishing a LinkedIn group where participants and the researcher could interact on aspects

related to the intervention). Most officers reported not having a LinkedIn account, and all were

reluctant to use more personal social media (e.g., WhatsApp, Facebook) to stay in touch with the

researcher. However, because I was provided with the participants' email addresses, I could send

follow-up emails and interact with participants after the workshop. As in Study 1, it was

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[21] Recently, Demerouti et al. (2020) also implemented a job crafting intervention where at least
one team manager and one HR representative attended the workshop to help employees with the various
exercises. However, they do not provide further reasons for doing so.

impossible to proceed with Step 7 (evaluation session) due to the high demands experienced by the units involved.

With regards to the top-down intervention, the same steps presented in Study 1 were followed. The only difference was that a close collaboration was achieved with two senior managers, in particular, of officers in the experimental group who were particularly proactive and enthusiastic about the whole intervention. Unfortunately, one of them changed her role immediately after the intervention and became manager of officers who were in the control group and who, accordingly, received the job crafting intervention at T2 (another manager in the experimental group also changed his role immediately after the workshop). Notably, during the job crafting workshop with her supervisees, participants expressed great admiration for their manager. This aspect provides qualitative support for the value of the top-down intervention.

3.3.5. Measures

The scales introduced in Study 1 (Section 3.2.3.) were also used in Study 2. Details about the internal consistencies of the measures in the context of Study 2 are provided in section 4.2.1.

3.3.6. Analyses

In Study 2, it was not possible to run robust preliminary analyses on the measures (i.e., CFAs) due to the limited number of responses. However, Cronbach's alphas were calculated for each scale to determine the measures' internal consistency (Bland & Altman, 1997; Cronbach, 1951), while the measurement model was validated in the context of Study 1 (section 4.1.2. below). Similarly, given the smaller sample size, regression analyses (Field, 2017) were run on the data (in line with Biggs et al., 2014; Hammer et al., 2011) rather than structural equation modelling. Subsequently, paired-sample t-tests were also run on each group to help understand any patterns of change. Further information on the statistical analyses, including preliminary

analyses (i.e., Cronbach's alphas) and assumptions checks, are provided in the following chapter

(section 4.2.).

Chapter 4 Findings

The primary aim of the present chapter is to present the thesis' statistical analyses and findings. The chapter is structured as follows. Section 4.1. describes the findings of the principal study (Study 1). The section starts with a description of the analytical approach followed (section 4.1.1.). This includes an introduction to path analysis (4.1.1.), a description of modelling principles (4.1.1.1.), and a discussion on the estimators used in the analyses (4.1.1.2.). Section 4.1.2. describes the preliminary analyses run to evaluate the measures' psychometric qualities and test the measurement model. Section 4.1.2.1. provides a justification for specifying specific indicators with correlated errors in the context of confirmatory factor analysis (CFA). Subsequently (section 4.1.2.2.), the findings of the preliminary analyses (i.e., Cronbach's alpha tests, CFA) run to test the internal consistency, factor structure and dimensionality of each construct are presented. Section 4.1.2.3. shows the results of the CFAs run to test the full measurement model. The section includes a discussion on distinct fit indices (and the implications for interpreting one or another in the context of specific models) and the results of chi-square difference testing using the Satorra-Bentler scaled chi-square. Section 4.1.3. introduces the data screening process to assess the suitability of the data for path analysis, followed by descriptive statistics (4.1.4.) and hypotheses testing (4.1.5.). Subsequently, study's 2 findings are presented (Section 4.2.) including Cronbach's alpha tests (4.2.1.), assumptions' check (for hierarchical multiple regression; 4.2.2.1.), regressions' results (4.2.2.2) and paired-samples t-tests' results (4.2.3.).

4.1. Study 1 Findings

4.1.1. Analytical Approach

Path analysis using structural equation modelling (Barbeau et al., 2019; Geiser, 2013; Haas et al., 2014; Lleras, 2005; Kelloway, 2017) was conducted to assess the direct, indirect, and total effects of the variables in the specified models and to test the hypotheses. Manifest variables were used for the analysis. In a path model, a direct effect represents the causal effect, described by a path coefficient (β_{direct}), from an independent variable to a dependent variable while controlling for the effects of other variables (included in the model) in the relationship (as in multiple regression; Haas et al., 2014; Lleras, 2005). An indirect effect ($\beta_{indirect}$), represents the amount of change in the dependent variable determined by the impact of the independent variable on the mediator/s and of the latter on the dependent variable (the effect of the predictor on the outcome through the mediators specified in the model; e.g., in a model like $x–(\beta_a)\rightarrow m–(\beta_b)\rightarrow y$ the indirect effect of x on y is $b_a * b_b$; Zyphur, 2019). In path models with multiple mediators and pathways, the total indirect effect of an independent variable on the dependent variable represents the sum of the indirect effects that go from the independent variable to the outcome (Muthén & Muthén, 2010; Lleras, 2005). The total effect of a predictor on an outcome represents the amount of change in the outcome as a result of the direct effect of the predictor on the outcome (β_{direct}) plus the indirect effect or (in more complex models) the total indirect effect (i.e., Total effect = $\beta_{direct} + b_a * b_b$; Haas et al., 2014; Kenny, 2018; Zyphur, 2019).

It is important to note that the total effect can be significantly smaller (or larger) than the direct effect or the total indirect effect (Haas et al., 2014; Zyphur, 2019). For example, a predictor can have a negative non-significant direct effect on the outcome but a positive significant total indirect effect on the latter (such as in the case of job crafting on well-being in

the results below). In this case, the total effect will be smaller than the total indirect effect as a

negative, non-significant coefficient is entered into the equation for the total effect (i.e., a

negative β_{direct} + a positive total indirect effect).

4.1.1.1. Modelling

Modelling was guided by the principles (i.e., propositions and hypotheses) discussed in

Chapter 2 (i.e., general conceptual model shown in Figure 5; section 2.4.)[22] and according to the

possible rival specifications of the indirect relationships in the model as fully or partially

mediated (Kelloway, 2017). Although the general conceptual model (Figure 5) reflects a full

mediation model, there are distinct reasons to test an a priori alternative partial mediation model.

One of the points of using SEM is to test alternative (statistically or theoretically competing)

models to identify the model with the best correspondence to the data and higher theoretical

value (Barbeau et al., 2019; Kelloway, 2014; Klein, 2015).

As suggested by Klein (2015), "Alternative models usually include the same observed

variables but represent different patterns of effects among them. […] the particular model with

acceptable correspondence to data may be retained, but the rest will be rejected" (p. 11).

Alternative models are typically generated considering either (a) omitted parameters or (b)

indirect effects in structural equation models (Kelloway, 2014, p. 96). Indirect effects in a model

have at least two rival interpretations, a fully mediated relationship and a partially mediated

relationship (Geiser, 2013; Kelloway, 2014; see also Kenny, 2021). For example, a relationship

such as job crafting → structural resources → P-J fit can be interpreted as (1) the effect of job

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[22] Note, it was not possible to assess the impact of the managers' social skills on the employees
(i.e., the lower part of the model shown in Figure 5) from the small number of supervisors. However, it
was not necessary to assess the managers' social skills to evaluate the impact of the top-down intervention
on job crafting, the job characteristics, and the other outcomes and test the hypotheses.

crafting on P-J fit is fully mediated by structural resources such that job crafting impacts P-J fit exclusively via its influence on structural resources (full mediation specification). Or (2) job crafting has a direct effect on both structural resources and P-J fit, and structural resources also have a direct effect on P-J fit (partial mediation). In other words, job crafting may have both a direct and an indirect (via structural resources) effect on P-J fit. Although full mediation is hypothesised, partial mediation is not implausible (see Geiser, 2013; Kelloway, 2014; Kenny, 2021). In terms of nesting sequencing of the models, the full mediation model is nested within the partial mediation model (Kelloway, 2014). Accordingly, it is possible that a partial mediation model reflecting partially mediated indirect effects can be a plausible alternative for the (fully mediated) indirect relationships hypothesised and to specify and assess both full and partial mediation models.

There are some substantive reasons to investigate the plausibility of partial mediation. For example, interventions directed at employees' health and well-being, not always precisely work via the intended and planned mechanisms. Namely, according to Daniels et al.'s (2021) systematic review, well-being and health interventions may elicit beneficial outcomes such as enhanced health through unplanned mechanisms activated in the implementation process. Accordingly, it is pivotal to broaden the spectrum of the theoretically plausible mechanisms tested through which the interventions elicit positive effects to ensure the analyses and findings do not miss detecting those processes through which the intervention worked. Specifying and testing a partial mediation model, as an alternative to full mediation, is thus seen as critical to avoid reaching biased or limited conclusions (i.e., missing detecting a significant indirect mechanism or a significant direct effect) and increase the reliability and value of the findings in line with previous research (i.e., Daniels et al., 2021). For instance, in line with Daniels et al.'s

(2021) findings, it is conceivable that job crafting may partially mediate the relationship between the job crafting intervention and social resources since intervention implementation (attendance to the workshop) may activate unintended mechanisms (improvement in social aspects of work; see Daniels et al., 2021) that translate into the intervention having both direct and indirect (via job crafting as theorised) effects on social resources that should not be left undetected inasmuch theoretically and conceptually relevant. According to the abovementioned reasons, both full and partial mediations models were tested in line with the propositions discussed in chapter two and the general conceptual model.

Namely (controlling for T1 variables), in the partial mediation specification, (1) the interventions were assumed to affect job crafting. (2) Job crafting and the interventions were assumed to affect the perceived job characteristics (i.e., social and structural resources, hindrance and challenge demands). (3) The perceived job characteristics, job crafting, and the interventions were expected to affect P-J fit. (4) P-J fit, the perceived job characteristics, job crafting, and the interventions were expected to affect meaning and coping efficacy. (5) Coping efficacy was expected to affect meaning. (6) Coping efficacy, meaning, P-J fit, the perceived job characteristics, job crafting, and the interventions were expected to affect well-being and job satisfaction. In the full mediation specification, direct effects were specified only between sequential relationships at each stage of the model (i.e., job crafting on the interventions; job characteristics on job crafting; P-J fit on job characteristics; meaning and coping on P-J fit; meaning on coping; well-being and job satisfaction on meaning and coping). Residuals of the well-being indicators (job satisfaction and well-being) were allowed to correlate; similarly, residuals of the job characteristics were allowed to correlate. This was necessary to account for the interdependencies between social and structural resources, and between resources and job

demands as assumed by the JD-R model and conservation of resources theory (Wood et al.,

2018).

Five models were tested. Namely, in the first model, only the dummy variables (coded

with 0 and 1 representing respectively the control group and the experimental group)

representing the two main interventions (top-down and bottom-up) were included to test the

main effects and direct effects according to the partial mediation specification. In the second

model, specified again according to the partial mediation solution, an interaction variable (top-

down*bottom-up) was included in the model to test the synergistic effects of the two

interventions and to compare main effects (model one) and interaction effects (model two). In

both models, robust maximum likelihood (MLR) estimation (see below for further information)

was used (Crowson, 2018; Knight et al., 2021; Muthén, 2015). In the third and fourth models, the

full mediation specification was tested with and without the interaction term for the two

interventions (top-down*bottom-up). Again, MLR estimator was used. The four models

indicated above were subsequently tested by bootstrapping (bias-corrected) the estimates with

1000 resamples (Barbeau et al., 2019; Geiser, 2013; Haas et al., 2014; Kelloway 2017; further

information in the next section) to test the specific indirect effects, the total effects, and total

indirect effects. Finally, a model test (i.e., Wald Test; Muthén & Muthén, 2010) was run to

determine whether the direct effects included in the partial mediation model (but not in the full

mediation model) were jointly zero. The Wald test corresponds to a chi-square difference test

(Muthén, 2017) and, if significant, indicates that the direct effects included are different from

zero, supporting the partial mediation model over the full mediation model (Muthén, 2017).

4.1.1.2. Estimators

The same models were run with robust full information maximum likelihood (MLR)

estimation (Brown, 2015; Crowson, 2018; Field, 2017; Kang, 2013; Kline, 2015; Muthén, 2015)

and with maximum likelihood estimator (ML) with 1000 bootstraps (Muthén & Muthén, 2012;

Field, 2017; Kelloway, 2017; Kline, 2015; Tibshirani & Efron, 1993; Wright et al., 2011) for the

following reasons. As indicated in the procedures section (3.2.1.2.), there were strong reasons to

use all the available information in data analysis to avoid the loss of information and removing

genuine observations. Excluding cases with methods such as listwise deletion can bias the results

and be the least effective method to handle missing data (Rubin et al., 2007). ML estimation and

multiple imputation are indicated by methodologists as the best methods to handle missing data

in most SEM applications (Brown, 2015). When data are not normally distributed, robust ML

(i.e., MLR) estimators should be used to obtain test statistics and standard errors (Brown, 2015;

Kline, 2015; Muthén & Muthén, 2012). MLR estimators, in particular, have many advantages

over other estimators, including computational efficiency and efficiency in handling missing data

and non-normality (Brown, 2015; Knight et al., 2021). Accordingly, to test the direct effects of

the variables in the models (and the fit statistics of the latter), while accounting for missing data,

MLR estimator was used. Bootstrapping, on the other hand, was used to test specific indirect

effects, total effects, and total indirect effects. Non-parametric bootstrapping is another estimator

that is robust to violation of assumptions and normality (Field, 2017) in which the sample serves

as the population to draw a broader sample (Brown, 2015; Kline, 2015). Namely, from the

sample, multiple other samples are randomly drawn, and from each sample, the statistics are

calculated (Field, 2017; Tabachnick & Fidell, 2013). The process is repeated as many times as it

is specified (in this case, 1000), and the results (e.g., standard errors, parameter estimated) are

averaged (Brown, 2015). A sampling distribution is therefore empirically generated (Kenny,

2018), and the confidence (or robust confidence) intervals (CI) can be obtained to determine the

chances (i.e., 95% CI) of getting the results obtained using a significantly larger sample

compared to the original sample: if the CI excludes zero it can be confidently concluded that

there is an indirect effect.

To further assess the robustness of the analyses and findings, the same models were

tested with MLR estimator and 1000 bootstraps using listwise deletion. The patterns of results

(i.e., fit statistics, direct effects, indirect effects) was consistent with very few minor differences

in some *p*-values. This indicates that the results do not change significantly using MLR missing

data estimation or listwise deletion and support the findings' reliability.

4.1.2. Preliminary Analyses - CFAs

As introduced earlier, a set of preliminary analyses was conducted to evaluate the

psychometric qualities of the measures used, their factor structure, dimensionality, and

distinctiveness. Cronbach's alpha tests were first run on each scale and subscales to determine

the internal consistency of the measures used (see Bland & Altman, 1997; Cronbach, 1951;

Laerd Statistics, 2015). Subsequently, I investigated the factor structure and dimensionality of

each construct separately through Confirmatory Factor Analysis (CFA) with maximum

likelihood robust (MLR) estimator correction (Kelloway, 2017; Tabachnick & Fidell, 2012;

Zyphur, 2019) due to the non-normal distribution of specific indicators (Barbeau et al., 2019;

Brown, 2015; Muthén & Muthén, 2010, 2012). Multilevel-CFAs (ML-CFAs; see section

4.1.2.3.) were then conducted to assess the fit of the proposed final model in comparison to

competing models and evaluate the distinctiveness of the main variables. To this end, chi-square

difference tests using the Satorra-Bentler scaled chi-square (Satorra & Bentler, 2010) were run to

assess discriminant validity, compare the proposed model with competing models, and determine whether specific dimensions tapping on akin psychological constructs were distinct from each other. Missing data at the items level were analysed using EM (expectation-maximisation) algorithm multiple imputation analysis (Little & Rubin, 1989). No missing data were detected on T1 items. At T2, only one case had missing values on specific indicators. Nevertheless, Little's MCAR test was non-significant ($p > .05$), indicating that data were missing completely at random.

Before proceeding with the preliminary analyses results, it must be noted that specific indicators in the CFAs below were specified with correlated errors. A brief discussion follows in support of the decisions taken in CFAs regarding correlated errors.

4.1.2.1. Correlated Errors

As indicated by Brown (2015) and Zyphur (2019), in analyses of multiple items scales, correlated errors (i.e., the measurement error of one item partially correlates with the measurement error of another) can be the result of method covariance, source, or method effects. In this case, two indicators may share unique variance due to other, exogenous causes. For instance, the measurement errors of specific indicators can covary because these items are similarly worded, capture similar facets of a construct, are both prone to social desirability or are reverse worded. Other reasons include method effects or reading difficulty. According to both authors, the specification of correlated errors in CFAs may be necessary and justified to account for method covariance, source, or method effects. When no correlated errors are specified in a measurement model, it is assumed that the latent variable is explaining all the covariation between indicators and that all the measurement error is random (Brown, 2015). However, ignoring the above-mentioned inherent psychometric properties of two indicators, which can

result in item covariation that is not explained by the latent factor, may result in a mis-specified CFA solution and should, thus, be avoided (see Brown, 2015).

As indicated by Asparouhov and colleagues (2015), when a residual correlation is the main reason for the CFA model misfit, this correlation "can be included in the CFA model to improve the model fit, the accuracy of the parameter estimates, and the accuracy of the factor score estimates" (p. 7). This is particularly important to avoid reaching biased conclusions and rejecting otherwise valid models. Indeed, multifactor CFAs are notoriously extremely restrictive, and even trivial and inevitable (i.e., psychometric indicators are rarely "perfectly pure construct indicators", Asparouhov et al., 2015, p. 3) correlated errors or cross-loadings can significantly, negatively impact model fit and lead to wrongly reject otherwise valid CFA solutions (for details see Asparouhov et al., 2015; Kelloway, 2017; Marsh et al., 2014; McCrae et al. 1996; Tóth-Király et al., 2017).

Previous research has shown that it is not uncommon to include correlated uniqueness (CUs, i.e., the specification of a covariance between the error terms of two different indicators) in CFA solutions, even in scales development. For instance, as indicated by Tóth-Király et al. (2017), in four separate studies on the Passion scale, all included at least two CUs in the final measurement model. Similarly, in applied research (e.g., Molina & O'Shea, 2020), it is not uncommon to include covariances between items in CFAs. This said, Brown (2015) indicates that CUs should be supported by a rationale and that decisions taken on whether to specify correlated errors should be consistent (i.e., on all pairs of indicators sharing analogous method effect).

Accordingly, in this study, when a rationale and a justification could be provided for the shared variance of specific items, the error terms of these indicators were correlated (see below).

While this could be seen as a limitation by some (arguably unjustified as highlighted above), it can be argued that ignoring correlated errors would be a worse limitation as relevant information available at the indicator level would be ignored (see for a discussion Asparouhov et al., 2015). Moreover, it is essential to underline that according to the reflective logic of factor analyses, "the factors are specified as influencing the indicators, rather than the reverse" (Morin et al., retrieved from Asparouhov et al., 2015, p. 3). Therefore, the specification of CUs, especially when isolated and justified, does not affect the nature of the construct itself, particularly when factor loadings are significant and substantial. I must underline that not all the items sharing unique variance were specified with CU, but only those who shared a large amount of variance where the justification for the shared variance could be provided.

4.1.2.2. Preliminary analyses of individual variables

I first analysed each variable separately at Time 1 and Time 2 as follows.

- **Job Crafting**

I first examined the alpha levels of the original Job Crafting Scale (JCS; Tims et al., 2012) and its subscales at T1 and T2. According to the literature, recommended alpha values are 0.7 or higher (DeVillis, 2003; Kline, 2005; Laerd Statistics, 2015), particularly for measures used in path analysis (Kelloway, 2017). The original JCS shows a Cronbach's alpha (α) of .83 at T1 and .88 at T2, indicating a high internal consistency of the scale. The subscales have the following α levels: increasing structural job resources at T1 ($\alpha = .78$) and at T2 ($\alpha = .81$); decreasing hindrance job demands at T1 ($\alpha = .83$) and at T2 ($\alpha = .84$); increasing social job resources at T1 ($\alpha = .79$) and T2 ($\alpha = .79$); increasing challenge job demands at T1 ($\alpha = .82$) and at T2 ($\alpha = .83$).

Because in the primary analyses job crafting is operationalised as a higher-order construct made of the four subscales indicated above plus the additional dimension of cognitive crafting (retrieved from the JCQ; Slemp & Vella-Brodrick, 2013), alpha levels were also calculated for cognitive crafting (T1 α = .84; T2 α = .85) and the combined JCS and cognitive crafting scale (T1 α = .87; T2 α = .90). Overall, job crafting, and the job crafting subscales show all high internal consistency and little random measurements error at T1 and T2, being, therefore, reliable instruments to measure the constructs under investigation (see Cooper, 2015).

Subsequently, I examined the factor structure of job crafting. First, I tested whether the original four-factor structure of the JCS (i.e., increasing social resources, increasing structural resources, decreasing hindrance demands, increasing challenge demands) was replicated in the sample at both data collection points. I compared the fit indices of the four-factor model with those of an alternative model which forced all the items to load onto a single dimension. Second, I ran a single-factor CFA where cognitive crafting indicators loaded on a cognitive crafting dimension to assess the factor loadings of cognitive crafting items. Finally, I examined a second-order CFA where the five-factor job crafting dimensions (i.e. a measurement model including the original JCS dimensions plus cognitive crafting) loaded on a higher-order job crafting factor as in the hypothesized final model.

(1) Inspection of the original four-factor structure of the JCS revealed that Item 6 ("In the past two weeks, I have tried to ensure that my work is emotionally less intense") and Item 7 ("In the past two weeks, I have tried to ensure that my work is mentally less intense") were negatively and significantly impacting model fit (both at T1 and T2) by sharing unique variance. Call centre agents in this sample did not have control over emotional and mental demands (calls are directed to them, and they cannot choose whether to answer or not or how much rest time to

take between calls). This aspect can have determined the shared variance of these two indicators.

Furthermore, the shared variance can also be explained by the fact that the items are very

similarly worded (see Brown, 2015). Therefore, these two indicators were specified with

correlated errors in the analysis.

Allowing the error-terms of the above-mentioned items to correlate, the four-factor model

(i.e., increasing social resources, increasing structural resources, decreasing hindrance demands,

increasing challenging demands) fitted the data well at T1 (RMSEA = .055; CFI = .926;

SRMR=.07) and T2 (RMSEA = .062; CFI = .915; SRMR=.065)[23] and better than a model in

which all items loaded on a single factor (e.g., T1: RMSEA = .15; CFI = .39; SRMR=.15). The

items show substantial standardised coefficients, with all indicators having significant

coefficients (T1: $p < .005$; T2: $p < .001$) and most indicators with coefficients above .60

(standardised factor loadings of .30 or .40 and above can be considered a "salient" factor loading

in applied research; Brown, 2015). At T1, only one item had a standardised factor loading below

.30. However, the indicator loaded significantly in the expected direction and was larger at T2;

hence, it was retained. The original four-factor structure of the JCS was thus replicated in the

sample at T1 and T2.

(2) Inspection of the single-factor cognitive crafting structure revealed that Item 2 ("In

the past two weeks, I have reminded myself about the significance my work has for the success

of the organisation") and Item 3 ("In the past two weeks, I have reminded myself about the

importance of my work for the broader community") were negatively and significantly impacting

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[23] Acceptable model fits are generally indicated by CFI and TLI value of .90 and over (Byrne, 2001; Hu & Bentler, 1999) or RMSEA and SRMR value of .09 or below (Hu & Bentler, 1999). For a discussion on fit indices see Section 4.1.2.3. below.

model fit (at T1 and T2) by sharing unique variance. The subscale shows high internal consistency (T1: α = .83; T2 α = .85) and the factor loadings load significantly (T1: p < .001; T2: p < .001) in the expected direction with substantial coefficients (i.e., > .60). It is, therefore, likely that these two items share variance due to being interpreted similarly by respondents and being similarly worded. Therefore, these two indicators were specified with correlated errors. The subsequent one factor model fits the data well at T1 (RMSEA = .061; CFI = .99; SRMR=.02) and T2 (RMSEA = .00; CFI = 1.000; SRMR=.016). All items load as expected with high coefficients.

(3) A second-order CFA where the five-factor job crafting dimensions (the original JCS dimensions and cognitive crafting with CUs specified as indicated above) loaded on a higher-order job crafting factor fitted the data well at T1 (RMSEA = .052; CFI = .922; SRMR =.077) and T2 (RMSEA = .054; CFI = .918; SRMR = .069). The items loaded significantly (T1: p < .004; T2: p < .001), in the expected direction on their respective factors (see Table 9). The job crafting dimensions loaded significantly (T1: p < .001; T2: p < .001) on the higher-order job crafting factor with substantial coefficients (Table 9a). The CFA supports the five-factor structure of job crafting hypothesised in the final model (i.e., increasing social resources, increasing structural resources, decreasing hindrance demands, increasing challenge demands, increasing cognitive crafting).

Table 9

Standardised Coefficients for Confirmatory Factor Analysis for Job Crafting

Items	Increasing Structural Resources		Decreasing Hindrance Demands		Increasing Social Resources		Increasing Challenge Demands		Cognitive Crafting	
In the past two weeks…	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
1. I have tried to develop my capabilities.	.872	.915								
2. I have tried to develop myself professionally.	.907	.822								
3. I have tried to learn new things at work.	.727	.780								
4. I have made sure that I use my capacities to the fullest.	.478	.552								
5. I have decided on my own how I do things.	.235	.337								
6. I have made sure that my work is mentally less intense.			.440	.598						
7. I have tried to ensure that my work is emotionally less intense.			.532	.622						
8. I have managed my work so that I try to minimise contact with people whose problems affect me emotionally.			.787	.704						
9. I have organised my work so as to minimise contact with people whose expectations are unrealistic.			.811	.811						
10. I have tried to ensure that I do not have to make many difficult decisions at work.			.648	.637						
11. I have organised my work in such a way to make sure that I do not have to concentrate for too long a period at once.			.692	.660						
12. I have asked my supervisor to coach me.					.681	.692				
13. I have asked whether my supervisor is satisfied with my work.					.832	.803				

Continued

14. I have looked to my supervisor for motivation.	.712	.716				
15. I have asked others for feedback on my job performance.	.619	.692				
16. I have asked colleagues for advice.	.432	.386				
17. When an interesting project came along, I offered myself proactively as project co-worker.			.725	.699		
18. If there were new developments, I was one of the first to learn about them and try them out.			.702	.754		
19. When there was not much to do at work, I saw it as a chance to start new projects.			.714	.714		
20. I regularly took on extra tasks even though I do not receive extra salary for them.			.701	.733		
21. I have tried to make my work more challenging by examining the underlying relationships between aspects of my job.			.665	.625		
22. I have thought about how my job gives my life purpose.					.693	.717
23. I have reminded myself about the significance my work has for the succ the organisation.					.631	.755
24. I have reminded myself of the importance of my work for the broader community.					.685	.755
25. I have thought about the ways in which my work positively impacts my life.					.834	.842
26. I have reflected on the role my job has for my overall well-being.					.645	.551

Note. *All standardised coefficients p < .01*

Table 9a

Standardised Coefficients for CFA for Job Crafting (Second-Order Factor)

Second-Order Factor	Job Crafting	
	T1	T2
1. Increasing Structural Resources	.794	.639
2. Decreasing Hindrance Demands	.313	.479
3. Increasing Social Resources	.488	.755
4. Increasing Challenging Demands	.550	.788
5. Cognitive Crafting	.652	.587

Note. *All standardised coefficients p < .01*

- **Person-Job Fit (P-J fit)**

P-J fit was operationalised as a higher-order construct composed of two facets, demands-abilities (DA) fit and needs-supplies (NS) fit (see Cable & DeRue, 2002; Kooij et al., 2017; Tims et al., 2016). The two three-item scales developed by Cable and DeRue (2002) to measure NS (T1: α = .89; T2: α = .91) and DA (T1: α = .80; T2: α = .86) were used to measure P-J fit (full scale T1: α = .87; T2: α = .90). The model with two dimensions (i.e., DA-NS) loading on a higher order P-J fit factor fitted the data well at T1 (RMSEA = .029; CFI = .997; SRMR = .027) and T2 (RMSEA = .090; CFI = .979; SRMR=.036) with all items showing large and significant (T1 and T2: p < .001) factor loadings on their respective factors and the two DA and NS dimensions loading substantially (T1 and T2: p < .001) on the higher order P-J fit factor (Tables 10 and 10a).

Table 10

Standardised Coefficients for Confirmatory Factor Analysis for P-J fit

Items	Needs-Supplies Fit		Demands-Abilities Fit	
In the past two weeks…	T1	T2	T1	T2
1. I have felt that there is a good fit between what my job offers me and what I am looking for in a job.	.841	.921		
2. I have felt that the attributes that I look for in a job are fulfilled very well by my present job.	.908	.917		
3. I have felt that the job that I currently hold gives me just about everything that I want from a job.	.824	.828		
4. I have felt that the match is very good between the demands of my job and my personal skills.			.873	.755
5. I have felt that my abilities and training are a good fit with the requirements of my job.			.645	.881
6. I have felt that my personal abilities and education provide a good match with the demands that my job places on me.			.736	.867

Note. *All standardised coefficients p < .001*

Table 10a

Standardised Coefficients for CFA for P-J fit (Second-Order Factor)

Second-Order Factor	P-J fit	
	T1	T2
1. Needs-Supplies Fit	.870	.727
2. Demands-Abilities Fit	.847	.952

Note. *All standardised coefficients p < .001*

- **Coping Efficacy**

As indicated earlier, the six-item Brief Resilience Scale (BRS; Smith et al., 2008) was used to measure coping efficacy with two items added from the ten-item version of the Connor–Davidson Resilience Scale (CD-RISC; Campbell-Sills & Stein, 2007) to assess the individual's ability to progress towards goals despite hindrances. The internal consistency of the scale with every item included was high (T1: α = .85; T2: α = .86). The BRS has three negatively worded items. Negatively worded items are a notorious source of method effect (Brown, 2015). CFA

research (Brown, 2003; Marsh, 1996; retrieved from Brown, 2015) has shown that accounting

for the covariance stemming from the directionality of the wording of the items by correlating

the measurement errors of negatively worded indicators, improves the interpretability and

goodness of fit of a model (Brown, 2015). Accordingly, the error terms of negatively worded

items were correlated. The single factor model fits the data well at T1 (RMSEA = .077; CFI

= .946; SRMR=.052) and T2 (RMSEA = .085; CFI = .938; SRMR=.058). All items loaded

significantly (T1 and T2: $p < .001$) in the expected direction with high coefficients (Table 11).

Table 11

Standardised Coefficients for Confirmatory Factor Analysis for Coping Efficacy

Items	Coping Efficacy	
In the past two weeks…	T1	T2
1. I have bounced back quickly after hard times at work.	.780	.741
2. I have had a hard time making it through stressful events at work. (r)	.517	.590
3. It has not taken me long to recover from a stressful event at work.	.657	.691
4. It has been hard for me to snap back when something bad happened at work. (r)	.621	.556
5. I have usually come through difficult times at work with little trouble.	.684	.832
6. I have tended to take a long time to get over set-backs at work. (r)	.632	.611
7. I was able to achieve goals despite obstacles.	.476	.476
8. I was able to stay focused under pressure.	.663	.484

Note. *All standardised coefficients p < .001. r = reverse coded.*

- **Meaning at work**

Seven items from the ten-items work as meaning inventory (WAMI; Steger et al., 2012)

were used to assess meaning at work. A single factor model fits the data well at T1 (α = .93;

RMSEA = .068; CFI = .98; SRMR= .023) and T2 (α = .94; RMSEA = .13; CFI = .941;

SRMR=.034) although RMSEA is slightly above the desirable level at T2. Standardised factor

loadings are all significant (T1 and T2: $p < .001$) and high (Table 12).

Table 12

Standardised Coefficients for Confirmatory Factor Analysis for Meaning at Work

Items	Meaning at Work	
In the past two weeks…	T1	T2
1. I have felt that I have a meaningful career.	.843	.839
2. I have seen my work as contributing to my personal growth.	.821	.790
3. I have had a good sense of what makes my job meaningful.	.869	.869
4. I have felt my work makes a positive difference in the world.	.835	.844
5. I have felt that I have discovered work that has a satisfying purpose.	.868	.890
6. My work has helped me make sense of the world around me.	.690	.718
7. I have felt that the work I do serves a greater purpose.	.786	.884

Note. *All standardised coefficients p < .001*

- **Job Resources**

Support from supervisor (T1: α = .84; T2: α = .88) and support from co-workers (T1: α = .85; T2: α = .87) were considered social job resources (T1: α = .84; T2: α = .86). Job autonomy, task variety, and opportunities for development were considered structural job resources (T1: α = .90; T2: α = .89). A second-order CFA was specified with the two dimensions support from supervisor and support from co-workers loading on a higher-order (social resources) factor, and the three dimensions job autonomy, task variety, and opportunities for development loading on a higher-order (structural resources) factor. Two similarly worded items from the task-variety subscale (i.e. "Over the past two weeks, the job has required the performance of a wide range of tasks" and "Over the past two weeks, the job has involved performing a variety of tasks") shared a substantial amount of variance and were specified with CU in agreement with previous decisions. Furthermore, call-centre agents in the sample do not perform a wide variety of tasks. Therefore, a method effect may additionally explain the shared variance of the two items. The model fits the data well at T1 (RMSEA = .043; CFI = .974;

SRMR=.053) and T2 (RMSEA = .058; CFI = .952; SRMR=.081) and better compared to a

model where all items are forced onto a single dimension (e.g., T1: RMSEA = .174; CFI = .549;

SRMR=.146). All items loaded significantly (T1 and T2: $p < .001$) in the expected direction with

high coefficients, and each level-1 dimension loaded significantly (T1 and T2: $p < .001$) on its

respective higher-order factor (Tables 13, 13a).

Table 13

Standardised Coefficients for Confirmatory Factor Analysis for Job Resources

Items	Support from Supervisor		Support from Co-workers		Job Autonomy		Task Variety		Development Opportunities	
In the past two weeks…	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
1. I was given supportive feedback on the work I do.	.620	.666								
2. I have been able to rely on my line manager to help me out with a work problem.	.778	.845								
3. I have been able to talk to my line manager about something that has upset or annoyed me about work.	.791	.837								
4. My line manager has encouraged me at work.	.873	.875								
5. If work has been difficult, my colleagues have helped me.			.942	.918						
6. I have got help and support I need from colleagues.			.935	.980						
7. My colleagues have been willing to listen to my work-related problems.			.575	.637						
8. I have had a say in my own work speed.					.685	.707				
9. I have had a choice in deciding how I do my work.					.836	.842				
10. I have had a choice in deciding what I do at work.					.756	.657				
11. I have had some say over the way I work.					.757	.734				
12. My working time has been flexible.					.493	.485			***Continued***	

13. The job has involved a great deal of task variety.	.927	.870
14. The job has involved doing a number of different things.	.927	.931
15. The job has required the performance of a wide range of tasks.	.888	.896
16. The job has involved performing a variety of tasks.	.896	.936
17. How much opportunity have you had in your job for challenging work?	.792	.813
18. How much opportunity have you had in your job to gain new skills and knowledge on the job?	.723	.840
19. How much opportunity have you had in your job of tasks that use all of your own skills and knowledge?	.696	.778

Note. *All standardised coefficients p < .001*

Table 13a

Standardised Coefficients for CFA for Job Resources (Second-Order Factor)

Second-Order Factor	Social Resources		Structural Resources	
	T1	T2	T1	T2
1. Support from Supervisors	.828	.697		
2. Support from Co-workers	.470	.609		
3. Job Autonomy			.688	.697
4. Task Variety			.805	.676
5. Opportunities for Development			.831	.765

Note. *All standardised coefficients p < .001*

- **Job Demands**

To assess challenge and hindrance job demands, twelve items were used from the two

eight-item measures created and validated by Rodell and Judge (2009) to assess challenge (T1: α

= .75; T2: α = .72) and hindrance (T1: α = .76; T2: α = .81) stressors. The two-factor model did

not fit the data well at T1 and T2. Inspection of the model revealed one problematic item in

particular. That is, the following item from the challenge stressor scale did not load significantly

on its dimension: "Over the past two weeks, my job has required a lot of skill". The item likely

captures another construct (i.e., skills variety). It was thus dropped, and the model re-examined.

The subsequent model fits the data reasonably well at T1 (RMSEA = .079; CFI = .895;

SRMR= .065) and T2 (RMSEA = .075; CFI = .912; SRMR=.071) and better compared to a

model which forced all the items onto a single dimension (e.g., T1 RMSEA = .135; CFI = .686;

SRMR=.084). The items loaded significantly (T1: $p < .026$; T2: $p < .001$), on their respective

factors (Table 14). The CFAs supports the dimensionality of job demands in terms of

challenging and hindrance job demands.

Table 14

Standardised Coefficients for Confirmatory Factor Analysis for Job Demands

Items	Challenge Stressors		Hindrance Stressors	
In my typical working day over the past two weeks…	T1	T2	T1	T2
1. I have had to work on a large number of projects and/or assignments.	.423	.353		
2. The volume of work that must be accomplished in the allocated time has been difficult.	.847	.815		
3. I have experienced severe time pressures in my work.	.839	.740		
4. I have felt the amount of responsibility I have at work.	.666	.610		
5. My job has required a lot of skills.(dropped)	-	-		
6. My job has required me to use a number of complex or high-level skills.	.264	.312		
7. I have had to go through a lot of red tape to get my job done.			.541	.530
8. I have not fully understood what is expected of me.			.478	.385
9. I have felt there are clear, planned goals and objectives for my work. (r)			.202	.381
10. I have received conflicting requests from two or more people.			.608	.706
11. I have received assignments without adequate resources and materials to execute them.			.775	.883
12. I have had many hassles to go through to get projects/assignments done.			.848	.931

Note. *All standardised coefficients p < .05 at T1, p < .01 at T2. r = reverse coded. Item number 5 dropped as coefficient not significant.*

- **Affective Well-being**

A ten-item measure of affective well-being (T1 α = .89; T2 α = .89) was used to

measure affective well-being (Russell & Daniels, 2018). Different models were tested in

agreement with Russell and Daniels (2018) and Daniels (2000). A first-order single factor

structure did not fit the data well (e.g., RMSEA = .170; CFI = .798; SRMR = .083) even though

indicators loaded significantly, with substantial coefficients, on the well-being factor (i.e., p

< .001). Response bias might affect the real structure of the measure (see Daniels et al., 1997;

Warr 1990a). Response bias factors (i.e., all negatively and positively worded items respectively)

set to be orthogonal with the well-being factor were thus added to the model (see Daniels, 2000;

Russell & Daniels, 2018). However, the latter emerged as adding 'noise' to the model and

creating problems in the analyses. That is, response bias factors could not be included in the

general model (see next section) as they created convergence issues that could not be solved by

increasing the number of iterations and convergence criterion. At the same time, response bias

factors created differential problems in every CFA solution. For instance, indicators loaded

significantly on the response bias factors and not on the general well-being factor. It is likely that

in the original 30-items scale, response bias factors created fewer problems because the scale has

a significantly higher number of indicators. The same issue was experienced with a five-factor

model (first-order factors Anxiety–Comfort; Angry–Placid; Depression–Pleasure; Tiredness–

Vigor; Bored–Enthusiastic) and a two-factor model (positive versus negative activated affect).

Namely, the five-factor and two-factor models without response bias factors had lower than

desirable fit indices, and the response bias factors could not be included in the models due to the

reasons mentioned above. Exploratory structural equation models (ESEMs) revealed that a two-

factor, positive-negative worded items (i.e., positive-negative affect, PA-NA; alternatively called

pleasantness/unpleasantness) solution was more consistent in explaining the data (without considering response bias factors). That is, two clear factors emerged from different ESEM solutions (i.e., distinct analyses where each of the items were specified to load on each of three, four or five dimensions showed that PA and NA items respectively loaded consistently significantly towards the same dimensions), which pointed to a bipolar structure of the scale (in the sample) with the two general dimensions of positive-negative worded items (PA-NA) - (a structure which is further supported by the high correlation between PA-NA; see below). In comparison to the original structure of the scale, items that loaded on different factors (i.e., on the positively activated or negative activated affect dimensions) in Russell and Daniels (2018) loaded on the same dimension in the data (e.g., anxious and bored loaded on the same factor). This indicates a slightly different structure of the scale with the sample at hand. Furthermore, except for the two dimensions of PA-NA (positive-negative worded items), the other factors specified in the ESEM solutions do not precisely match at T1 and T2 with specific indicators loading on different dimensions at T1 and T2; again indicating that a bipolar positive-negative worded items solution for well-being is the best solution for the data.

Indeed, a first-order two-factor model CFA with positively worded items loading on one first-order factor and negatively worded items loading on another first-order factor provided the best fit for the data in the sample compared to the solutions indicated above. The results indicated a high correlation between PA and NA (i.e., .805), supporting the inclusion of a higher-order well-being factor in the model and pointing to a unique general construct (i.e., affective well-being) underlying the indicators (as also emerged from the high Cronbach's alphas). A CFA was thus specified with PA and NA (positive-negative worded items) loading on a higher-order well-being factor. The model, with two CUs (i.e., "anxious" - "bored", "calm" - "at ease"), fit the

data reasonably well at T1 (RMSEA = .096; CFI = .931; SRMR= .047) and T2 (RMSEA = .089; CFI = .949; SRMR = .045). Factor loadings are all significant (T1 and T2: $p < .001$) and large (see Table 15). It must be noted that the specified structure does represent a departure from the original structure of the scale (i.e., made of five dimensions or the two dimensions of positive and negative activated affect; Daniels, 2000; Russell & Daniels, 2018).

The difference in the factor structure, possibly, point to a psychological or philosophical (more than psychometric) matter (at least with short scales). That is, does an item like feeling "Gloomy" reflect (and is interpreted as) unpleasantness as captured by a pleasantness/unpleasantness dimension (see Watson & Tellegen, 1985)? Or does it indicate (and is interpreted as) low positive activated affect as captured by the dimension of positive (versus negative) activated affect (e.g., see Tellegen et al., 1999; Watson & Tellegen, 1985)?[24] As indicated by Tellegen et al. (1999), while specific scales (including their own PANAS) support the orthogonality of the two dimensions of negative and positive activated affect, findings are inconsistent, and often the two dimensions emerge as strongly correlated. This can be due to the short form of certain scales, which cannot capture facets such as the intensity of the feeling related to a given feeling (an aspect which is necessary to distinguish between positive-negative activated affect). At a biological level, in agreement with findings in neuroscience (i.e., Barrett, 2017), it can be said that pleasant/unpleasant feelings are the basis of subsequent experiences of emotions or mood states. These latter represent subjective experiences that stem from previous experience and social reality (Barrett, 2017); thus, they are difficult to capture at an objective

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[24] Note, positive activated affect refers to the extent to which a person feels active, enthusiastic, alert. Negative activated affect refers to the extent to which a person feels adverse states such as nervousness, fear, guilt, with low levels of negative affect indicating a state of serenity or calmness.

level (Barrett, 2017) and possibly require complex, longer scales to be identified. Pleasant versus unpleasant feelings, conversely, represent the basis of interoception (i.e. the brain's representation of the organism's internal state) and interoceptive state, and are therefore easier to capture at a biological level, easier to be interpreted and understood at a cognitive level, and easier to be transmitted at a social level (Barrett, 2017). It is, therefore, possible that a bipolar solution with two dimensions pleasant/unpleasant feelings is the best representation of affect with short scales because pleasantness/unpleasantness is the best overall representation of affective indicators when the number of items is limited. As introduced above, short scales cannot capture many facets, and more items would, arguably, be needed to identify other dimensions like the level of arousal related to a particular feeling (an element which is inherent to a Positive and Negative activated affect categorisation of well-being; see Tellegen et al., 1999) or to ensure that items are interpreted as they are intended to.

In other words, it is reasonable to infer that whether an item like feeling "Gloomy" reflects low positive affect or purely negative/unpleasant affect (in the absence of further indicators related to the same feeling) is more a philosophical rather than a psychometric matter (with short scales) and depend on contexts and individuals. The same item can represent both depending on the level of analysis considered, the level of individual's awareness, the social context, and the subjective knowledge-experience (awareness at a low interoceptive level, or a higher cognitive level? Gloomy interpreted as depressed or as frightened?). In the context of this study, a general pleasantness/unpleasantness dimensionality of affect emerges as the most favourable solution from both CFAs and ESEMs. This could be due to the sample, the short form of the measure, the focal instructions, or because pleasantness/unpleasantness dimensions better capture the dimensionality of the scale according to the sample's responses.

What can be concluded, however, is that the high correlation between PA and NA (and

the high factor loading of these on the second-order well-being factor), the acceptable CFA fit

indices, the high factor loadings (see Tables 15 and 15a), and the high reliability of the scale

indicate that the ten indicators are valid instruments that measure a unique underlying dimension

of emotional well-being.

Table 15

Standardised Coefficients for Confirmatory Factor Analysis for Well-Being

Items	Positive Affect		Negative Affect	
Thinking of the past two weeks, how much of the time has your job made you feel each of the following:	T1	T2	T1	T2
1. Happy	.904	.918		
2. At ease	.848	.870		
3. Anxious (r)			.728	.735
4. Annoyed (r)			.678	.700
5. Motivated	.781	.788		
6. Calm	.771	.689		
7. Tired (r)			.588	.688
8. Bored (r)			.583	.640
9. Gloomy (r)			.849	.874
10. Active	.547	.511		

Note. *All standardised coefficients p < .001. r = reverse coded.*

Table 15a

Standardised Coefficients for CFA for Well-Being (Second-Order Factor)

Second-Order Factor	Well-Being	
	T1	T2
1. Positive Affect	.809	.777
2. Negative Affect	.981	.906

Note. *All standardised coefficients p < .001. r = reverse coded.*

4.1.2.3. Confirmatory Factor Analysis Full Measurement Model

Following the CFAs on individual variables, I tested the full measurement model through CFAs with all the hypothesised factors. The proposed structure consisted of eighty-seven indicators, eighteen first-order dimensions, and five higher-order factors in agreement with the individual CFAs discussed above and the general conceptual model (Figure 5). The hypothesised 23-factor structure fits the data reasonably well considering the complexity of the model (T1: RSMEA = .054, SRMR =.093, CFI = .80; T2: RSMEA = .059, SRMR =.096, CFI = .787) with all items loading significantly (T1: larger p = .018; T2: p < .003) onto their respective dimensions consistently with the individual CFAs shown above.

This said, CFI was somewhat low. The low CFI is seen as a result of the complexity of the model. Indeed, from the literature, it emerges that models with many observed variables are penalised in SEM in terms of fit indices in general (Moshagen, 2012; Kenny & Mc Coach, 2003) and CFI in particular (see below). Correct models are likely to be rejected simply because there are many manifest variables (Moshagen, 2012), especially with relatively limited sample sizes. Under these conditions (i.e., a high number of observed variables, moderate sample size), fit indices are likely to produce misleading results (Chen et al., 2008; Curran et al., 2002; Ding et al., 1995; Herzog & Boomsma, 2009; Jackson, 2007; Kenny & McCoach, 2003; Moshagen, 2012). Following his Monte-Carlo simulation studies, for instance, Moshagen (2012) concludes that, "the major consequence of the studies reported herein is that the number of manifest variables must be taken into account when evaluating the fit of a model [… and that] finally, substantial researchers should be aware that criteria for evaluating model fit drastically depend on the number of manifest variables contained in a model" (pp. 96-97).

In a similar note, Kenny and McCoach (2003) indicate that, "often it might appear that the model fits well when analysed piecemeal, but poorly when all the parts are analysed together. In this case, the whole is less than the sum of the parts. If the number of variables in the model affects various measures of fit, then researchers may mistakenly trim variables out of their models to achieve acceptable fit indexes…" (p. 336).

More specifically (even though systematic investigations of the effects of the number of factors and indicators on fit indices are rare; Kenny & McCoach, 2003), CFI (and TLI) do appear to indicate a worse fit as the number of indicators or factors increases in a model (as emerged from Anderson & Gerbing, 1984; Ding et al., 1995; Kenny & McCoach, 2003). As Kenny and McCoach (2003) report in their study, "in correctly specified models, the TLI and the CFI tend to demonstrate worse fit as the number of variables in the model increases, whereas the RMSEA seems to demonstrate the opposite pattern. Therefore, it appears that the CFI and the TLI do not function well with correctly specified models that include a large number of variables" (p. 350). They conclude that researchers elaborating more elaborated models could be unfortunately penalised if the focus is merely on fit indices and arbitrary cut-off values.

Concerning this last point, there seems to be confusion about the "validity" of cut-off values and what represents a "good or bad model". As Lai and Green (2016) recently wrote: "when cut-offs were first suggested, scholars who proposed them emphasized without exception that these values were simply crude aids for interpretation rather than strict thresholds and were based on experience and intuition rather than mathematical derivation" (p. 220). Indeed, SEM experts are calling for caution against over-interpreting cut-offs (Lai & Green, 2016). Concerning the hypothesised factor structure, the fact that RMSEA and CFI are (relatively) contradictory is not an isolated case. Instead, it is common in SEM applications to have

conflicting fit indices (Lai & Green, 2016). The cause for contradictory RMSEA and CFI is more

complicated than usually believed or reported (Lai & Green, 2016) but does not imply that a

model is "bad" just because the two fit indices disagree (see Lai & Green, 2016, for a

mathematical explanation). From a conceptual point of view, the author's explanation for the

slightly contradictory RMSEA (and SRMR) with CFI is as follows.

RMSEA and SRMR are absolute fit indices. That is, they evaluate how well the specified

model fits (and reproduces) the sample data (i.e., covariance matrix; Hooper et al., 2008; Kenny

& Mc Coach, 2003). Unlike incremental fit indices (i.e., CFI, TLI), absolute fit indices do not

compare the specified model with a baseline model (i.e., a more restrictive model which assumes

that variables are measured without errors and which allows the variables in the model to have

variation but no correlation; Kenny, 2015; Schermelleh-Engel et al., 2003). Instead, they

measure how well the specified model fits the data compared to no model at all (Hooper et al.,

2008). Incremental fit indices like CFI and TLI, conversely, measure the proportionate amount of

improvement in the fit of the specified model compared with a more restricted baseline model.

In the context of this study, the specified model is very restricted compared to the number

of observed variables and factors (i.e., according to the model modification indices many cross-

loadings and CUs should be specified in the model) and this explains why CFI fails to detect a

"desirable" (i.e., > .90) incremental improvement in the fit of the proposed model (even though a

CFI of .80 is not necessarily "bad", and as shown below it is higher compared to alternative

models). That is, as one would expect given the complexity of the model, many cross-loading

and CUs are possible and should be explicitly taken into account to achieve "desirable" CFI and

fit indices in general (see Asparouhov et al., 2015; Kelloway, 2017; Marsh et al., 2014; McCrae

et al. 1996; Tóth-Király et al., 2017). According to Marsh et al. (2014), for instance, "factor

structures based on measures used in applied research typically include cross-loadings that [….]

simply represent another source of measurement error, whereby items are fallible indicators of

the constructs and thus tend to have small residual associations with other constructs " (pp. 87-

88). According to them and others (e.g., Asparouhov et al., 2015), psychometric indicators in the

social sciences are never pure indicators of a (single) construct. That is, psychometric items are

likely to share significant levels of valid, true score associations with more than one construct

(Asparouhov et al., 2015; Tóth-Király et al., 2017). Therefore, non-zero cross-loadings (which

are not assumed by item-level CFAs) are characteristic of psychometric measures and tend to

have a negative impact on fit indices in even relatively simple multi-factor, item-level CFAs

(e.g., with 50 items overall) let alone in more complex models with many factors and observed

variables such as the hypothesised one (see Asparouhov et al., 2015; Marsh et al., 2014; Tóth-

Király et al., 2017).

Researchers usually use the modification indices (or use parcelling and other strategies,

Kenny & McCoach, 2003, p. 335) to improve model fit (Hooper et al., 2008; Kenny &

McCoach, 2003). Nevertheless, as indicated by Lai and Green (2016) and Kenny and McCoach

(2003), they possibly miss the point as there might be logical and mathematical explanations of

why some fit indices do not indicate a good fit for a model (e.g., as shown above, the number of

variables or factors). Based on the discussion above and previous research, the (relatively) lower

than desirable CFI in the proposed factor structure is seen as a result of the high number of

observed variables and factors in the model. The acceptable absolute fit indices (i.e., RMSEA

and SRMR; note, a combination of acceptable RMSEA and SRMR does indicate a good fitting

model according to Hu and Bentler's, 1999, two-index presentation strategy), the fact that the

factor structures of individual variables fit the data well, the high reliability of the scales, (and, as

shown below, the favourable comparison of the proposed model with alternative models), support the hypothesised structure as well as the dimensionality and distinctiveness of the main variables.

In support of this conclusion, I compared the hypothesised structure with a series of alternative models with fewer factors based on specific modelling rationale criteria (i.e., psychometrically comparable constructs such as increasing challenge demands and challenge stressors loading on the same factor). To ensure the comparison models were nested and thus to run Satorra-Bentler chi-square difference tests, the second-order job crafting factor was removed from the hypothesised model. Nevertheless, the resulting 22-factor model (the same as the proposed model, including the job crafting dimensions but excluding the second-order job crafting factor) was almost identical in terms of fit indices and coefficients to the hypothesised 23-factor model (including the second-order job crafting factor) whose fit indices were indicated at the beginning of this chapter.[25]

I compared the proposed 22-factor model with six alternatives:

(1) A 21-factor model that forced hindrance stressors and decreasing hindrance demands indicators onto one dimension while everything else was specified as in the proposed model.

(2) A 21-factor model that forced meaning at work and cognitive crafting indicators onto one dimension while everything else was specified as in the proposed model.

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[25] The second-order job crafting factor was removed to run the chi-square difference tests to ensure the comparisons models were nested. This was needed to compare, via Satorra-Bentler chi-square difference tests, the alternative models (i.e., models where the items of specific job crafting dimensions were forced to load on the same factors with indicators of similar constructs) with the hypothesised model (with the distinct job crafting dimensions of increasing social, structural resources, and challenge demands, decreasing hindrance demands, and cognitive crafting) and hence establish the dimensionality and distinctiveness of the constructs.

(3) A 21-factor model that forced challenge stressors and increasing challenge demands

indicators onto one dimension while everything else was specified as in the proposed model.

(4) A 19-factor model that forced support from colleagues, supervisory support, and increasing

social resources indicators onto one dimension while everything else was specified as in the

proposed model.

(5) An 18-factor model that forced job autonomy, opportunities for development, task variety,

and increasing structural job resources indicators onto one dimension while everything else was

specified as in the proposed model.

(6) A 12-factor model that forced simultaneously challenge stressors and increasing challenge

demands indicators to load onto one dimension; hindrance stressors and decreasing hindrance

demands to load onto one dimension; meaning at work and cognitive crafting indicators to load

onto one dimension; support from colleagues, supervisory support, and increasing social

resources indicators to load onto one dimension; job autonomy, opportunities for development,

task variety, and increasing structural resources indicators to load onto one dimension.

Chi-square difference testing using the Satorra-Bentler scaled chi-square (and

comparison of the other fit indices) show that the alternative models fit the data significantly

worse than the proposed congeneric model (Tables 16 and 17). Again, supporting the

hypothesised structure and the distinctiveness of the main variables at T1 and T2.

Table 16

Full Measurement Model Time 1 Confirmatory Factor Analysis Results

T1 Model	χ^2	*df*	TRd (Δdf)	RMSEA	SRMR	CFI
22-factors: Proposed	6062.825	3559		.054	.089	.807
21-factors: hindrance stressors and decreasing hindrances combined	6474.496	3571	345.754** (12)	.058	.101	.776
21-factors: meaning and cognitive crafting combined	6166.730	3571	86.658** (12)	.055	.090	.799
21-factors: challenge stressors and increasing challenges combined	6471.738	3571	387.644** (12)	.058	.096	.776
19-factor: support from colleagues, supervisory support, and increasing social resources combined	6724.024	3573	524.589** (14)	.060	.094	.757
18-factor: job autonomy, development opportunity, task variety, and increasing structural resources combined	6902.622	3574	651.478** (15)	.062	.098	.743
12-factor: all alternative factor solutions combined in the same model	8418.774	3614	1909.97** (55)	.074	.114	.629

Note. χ^2 = chi-square; *df* = degrees of freedom; TRd = Sattora-Bentler Scaled Chi-Square Difference; RMSEA = root-means square error of approximation; SRMR = standardized root-mean square residual; CFI = comparative fit index. ** = *p* < .001. [a]All models are compared with the 22-factor model.

Table 17

Full Measurement Model Time 2 Confirmatory Factor Analysis Results

T2 Model	χ^2	*df*	TRd (Δdf)	RMSEA	SRMR	CFI
22-factors: Proposed	5780.071	3559		.059	.091	.793
21-factors: hindrance stressors and decreasing hindrances combined	6263.185	3571	394.741** (12)	.065	.109	.749
21-factors: meaning and cognitive crafting combined	5881.239	3571	78.569** (12)	.060	.091	.785
21-factors: challenge stressors and increasing challenges combined	5977.761	3571	154.110** (12)	.061	.093	.776
19-factor: support from colleagues, supervisory support, and increasing social resources combined	6296.306	3573	340.234** (14)	.065	.095	.746
18-factor: job autonomy, development opportunity, task variety, and increasing structural resources combined	6540.164	3574	468.082** (15)	.068	.097	.723
12-factor: alternative combinations above in the same model	7797.461	3614	1371.41** (55)	.080	.118	.610

Note. χ^2 = chi-square; *df* = degrees of freedom; *TRd* = Sattora-Bentler Scaled Chi-Square Difference; RMSEA = root-means square error of approximation; SRMR = standardized root-mean square residual; CFI = comparative fit index. ** = *p* < .001. [a]All models are compared with the 22-factor model.

Altogether the results indicated above provide support for the proposed measurement model.

4.1.3. Data Screening

Following the preliminary analyses on the measures and the measurement model, and before proceeding with hypotheses testing, data were screened for univariate and multivariate outliers, the pattern of missing data, and normality in SPSS. A series of one-way analyses of variance (ANOVAs) were also conducted to assess for pre-existing differences between the treatment and wait-list control groups for the research variables. Missing data were analysed

using EM (expectation-maximisation) algorithm multiple imputation analysis (Little & Rubin,

1989). Little's MCAR test was non-significant ($p > .05$), indicating that data were missing

completely at random, thus justifying the use of maximum likelihood estimation to impute

missing data. As introduced earlier (section 4.1.2.), Little's MCAR test was also conducted at the

items level. No missing data were detected on T1 items. At T2, only one case had missing values

on specific indicators. Nevertheless, Little's MCAR test was non-significant ($p > .05$), indicating

that data were missing completely at random, thus providing a further justification for using

maximum likelihood estimation to impute missing data. Z-scores were calculated on the

averaged scales[26] and subscales to spot and inspect potential outliers (Field, 2013). Most

variables have values that fall between the recommended cut-off point of $z = \pm 3.29$, with most

cases being < 1.96. Only two variables, T1 social resources and T1 hindrance demands showed

some lower z-scores (-3.4, -3.9, respectively). Still, these were limited (i.e., to only one case

below the recommended cut-off point), hence in line with what could be expected by a normal

distribution (Field, 2017). Therefore, these scores likely represented genuine observations, also

considering that the data inspection did not reveal extremely isolated cases. Nevertheless, robust

estimation methods such as maximum likelihood estimation with robust standard errors and

bootstraps (information on the estimation methods used were provided in Section 4.1.1.2.) were

used to minimise the impact of possible outliers (Field, 2013).

Multivariate outliers were investigated by using Mahalanobis distance cut off values

(Barbeau et al., 2019). Data are considered multivariate outliers if their Mahalanobis distance has

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[26] Note. The scales made of different dimensions (i.e., the job crafting scale, social resources, and
structural resources) were standardised before carrying out the analyses to ensure that subscales with
more items did not dominate scale scores.

a *p*-value < .001 (Field, 2013). Two multivariate outliers were detected. The data were tested with and without the observed multivariate outliers. No meaningful differences were found in terms of fit indices of the models and the magnitude, direction, and significance of the relationships between variables. Only two parameters, in the partial mediation model, had significantly different *p*-values when data were analysed with or without outliers (i.e., T2 meaning on well-being and T2 challenge job demands on well-being). The direction and the strength of the two coefficients, however, were consistent in both cases. Inspection of the two outliers did not reveal abnormalities (e.g., data entry errors; coding errors). Therefore, the cases were considered genuine observations of participants who completed both T1 and T2 surveys entirely and were not removed (observations should only be removed if there are strong reasons to believe they are not from the population under investigation; Field, 2015). Robust estimators such as MLR (and bootstrapping) overcome the outlier problem (Şahin, 2017; Yuan & Zhong, 2013) and are robust to violations of assumptions and normality (Field, 2017; Muthén & Muthén, 2012).

Z-scores were also calculated to examine skewness and kurtosis for each variable to compare the data to a normal distribution (i.e., values ±2.58 are significant at the .01 level; Laerd Statistics, 2015). Most variables were normally distributed. Exceptions were: T1 job satisfaction with a positive skewness of 3.2 (*SE* = 0.156; the histogram, however, showed a normal distribution); T1 meaning with a negative skewness of -3.1 (*SE* 0.156); T2 meaning with a slight negative skewness of -2.9 (*SE* 0.180); T1 social resources with a negative skewness of -3.7 (*SE* 0.156). As said earlier, considering the possible non-normal distribution of some variables, MLR estimator correction and bias-corrected bootstrap estimates are used in the following analyses.

These are robust to non-normality (Barbeau et al., 2019; Field, 2017; Knight et al., 2021; Muthén & Muthén, 2010, 2012).

A series of ANOVAs were conducted to assess pre-existing differences between the treatment and wait-list control groups for the research variables. There were no statistically significant differences between the bottom-up intervention experimental group and the bottom-up intervention wait-list control group in job crafting, structural resources, hindrance and challenge job demands, social resources, P-J fit, coping efficacy, meaning, well-being and job satisfaction. There were no statistically significant differences between the top-down intervention experimental group and the top-down intervention wait-list control group in job crafting, structural resources, hindrance job demands, social resources, P-J fit, and coping efficacy. There was a statistically significant difference between the top-down intervention experimental group and the top-down intervention wait-list control group at baseline in challenge job demands $F(1, 241) = 18.29$, $p < .001$; meaning $F(1, 241) = 13.79$, $p < .001$; well-being $F(1, 241) = 15.10$, $p < .001$; and job satisfaction Welch's $F(1, 221.66) = 13.78$, $p < .001$. Specifically, participants in the top-down intervention experimental group reported lower levels of challenge demands and higher levels of meaning, well-being, and job satisfaction at Time 1 than the wait-list control group. There were no statistically significant differences between the integrated intervention group and the wait-list control group in job crafting, social resources, hindrance job demands, coping efficacy, meaning, and job satisfaction. There was a statistically significant difference between the integrated intervention group and the wait-list control group at baseline in structural resources $F(1, 241) = 6.16$, $p < .05$; challenge job demands $F(1, 241) = 24.19$, $p < .001$; and P-J fit $F(1, 241) = 4.52$, $p < .05$. Specifically, participants in the integrated

intervention group reported lower levels of structural resources, challenge demands, and P-J fit at Time 1 compared with the wait-list control group.

4.1.4. Descriptive Statistics

Table 18 shows the means, standard deviations, and correlations for the main variables.

Table 18

Means, Standard Deviations, and Pearson Correlations Between the Study Variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1.Job Crafting T1	.00	.65																			
2.Job Crafting T2	.00	.70	.61**																		
3.Social Res. T1	.00	.83	.44**	.38**																	
4.Social Res. T2	.00	.84	.37**	.40**	.53**																
5.Structural Res. T1	.00	.81	.47**	.33**	.39**	.27**															
6.Structural Res. T2	.00	.80	.29**	.51**	.29**	.24**	.53**														
7.Challenge D. T1	2.76	.83	.14*	.08	-.04	-.09	.13	.19*													
8.Challenge D. T2	2.79	.76	.19*	.20**	.08	-.13	.19*	.17*	.46**												
9.Hindrance D. T1	2.35	.71	-.00	-.15	-.25**	-.31**	-.12	-.16*	.47**	.21**											
10.Hindrance D. T2	2.39	.75	.04	-.020	-.26**	-.30**	-.16	-.20**	.21**	.35**	.57**										
11.P-J Fit T1	3.28	.80	.39**	.35**	.40**	.36**	.55**	.39**	.02	.02	-.30**	-.25**									
12.P-J Fit T2	3.25	.84	.34**	.49**	.44*	.39**	.40**	.58**	.02	.05	-.40**	-.41**	.65**								
13.Coping T1	3.40	.73	.24**	.24**	.29**	.15	.29**	.27**	-.23**	-.12	-.31**	-.30**	.38**	.35**							
14.Coping T2	3.33	.71	.23**	.42**	.22**	.17*	.14	.34**	-.04	-.22**	-.17*	-.32**	.25**	.45**	.53**						
15.Meaning T1	3.17	.94	.55**	.54**	.40**	.41**	.57**	.48**	.07	.06	-.20**	-.23**	.71**	.62**	.42**	.38**					
16.Meaning T2	3.18	.92	.43**	.63**	.42**	.38**	.44**	.65**	.08	.08	-.26**	-.29**	.52**	.74**	.39**	.52**	.71**				
17.Well-being T1	3.69	.99	.25**	.39**	.27**	.19**	.47**	.42**	-.22**	-.04	-.36	-.31**	.55**	.56**	.55**	.46**	.62**	.56**			
18.Well-being T2	3.57	.96	.28**	.38**	.33**	.25**	.36**	.53	-.01	-.17*	-.24**	-.40**	.48**	.63**	.51**	.65**	.55**	.62**	.72**		
19.Job Sat. T1	2.79	.73	.32**	.34**	.36**	.29**	.47**	.34**	-.24**	-.13	-.36**	-.32**	.52**	.57**	.45**	.38**	.53**	.48**	.63**	.51**	
20.Job Sat. T2	2.72	.74	.27**	.40**	.34**	.29**	.37**	.49**	-.06	-.17*	-.32**	-.35**	.45**	.66**	.42**	.50**	.47**	.54**	.51**	.71**	.61**

Note. The following scales have standardised scores: Job crafting, Social resources, Structural resources. * $p < .05$; ** $p < .01$.

4.1.5. Hypotheses Testing

I first compared the fit indices of the different models tested (Table 19). The partial

mediation model with main effects only (i.e., with the two dummy variables representing the top-

down and bottom-up interventions) was the best fitting model using MLR estimator (RMSEA

= .071; SRMR = .076; CFI = .916) and ML estimator with 1000 bootstraps and BC confidence

intervals (RMSEA = .077; SRMR = .076; CFI = .915). The full mediation model with main

effects only fitted the data less well compared to the partial mediation model with main effects

only (MLR estimator: RMSEA = .075; SRMR = .087; CFI = .824; 1000 bootstraps: RMSEA

= .079; SRMR = .087; CFI = .831) - (see Wald test below which corresponds to the chi-square

difference test when testing full versus partial mediation; Muthén, 2017)[27]. The inclusion of the

interaction term (top-down* bottom-up) to the model had a negative impact on the fit indices in

both, the partial mediation model (i.e., MLR estimator: RMSEA = .074; SRMR = .080; CFI

= .896; 1000 bootstraps RMSEA = .079; SRMR = .080; CFI = .897) and the full mediation

model (i.e., MLR estimator: RMSEA = .074; SRMR = .091; CFI = .806; 1000 bootstraps

RMSEA = .077; SRMR = .091; CFI = .814). Inspection of the models revealed that the

interaction variable did not have any significant direct or indirect effect on any outcome.

Therefore, the partial mediation model with main effects only was the model that best fitted the

data. In further support of the partial mediation model, the Wald Test was significant: 292.319; *p*

< .001. A significant Wald test indicates that the direct effects included in the partial mediation

model with main effects (and not in the full mediation model with main effects) are meaningful

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[27] Chi-Square difference testing also indicates that the full mediation model with main effects fits
the data significantly less well than the partial mediation model with main effects (TRd (Δdf) = 171.1335
(64), *p* < .001).

and different than zero (Muthén, 2017). This is further confirmed by the fact that direct effects

included in the partial mediation model were almost all significant (see also Figure 13 and Table

20). It is worth noticing that the strict form of the hypothesised model (reflecting fully mediated

indirect effects, Figure 5) was not supported by the data. The alternative model (reflecting

partially mediated indirect effects; see discussion in section 4.1.1.1.) emerged as having superior

correspondence to the data.

Table 19

Models Fit Indices

Model	RMSEA	SRMR	CFI
Partial mediation model with MLR Estimator Correction – Main Effects Only (top-down and bottom-up)	.071	.076	.916
Partial mediation model with MLR Estimator Correction – Interaction term (top-down*bottom-up) included	.074	.080	.896
Full mediation model with MLR Estimator Correction – Main Effects Only	.075	.087	.824
Full mediation model with MLR Estimator Correction – Interaction term included	.074	.091	.806
Partial mediation model with ML estimator with 1000 bootstraps. – Main Effects Only	.077	.076	.915
Partial mediation model with ML estimator with 1000 bootstraps. – Interaction term included	.079	.080	.897
Full mediation model with 1000 bootstraps BC confidence intervals – Main Effects Only	.079	.087	.831
Full mediation model with 1000 bootstraps BC confidence intervals. – Interaction term included	.077	.091	.814

Note. RMSEA = root-means square error of approximation; SRMR = standardized root-mean square residual; CFI = comparative fit index.

Once established that the partial mediation model with main effects only was the model

that best reflected the data and that the interaction term was not significant, the hypotheses were

tested based on the partial mediation model (the coefficients and diagrams for the full mediation

models are presented in Appendix 4). Judgements of significance were made based on both MLR estimator and ML estimator with bootstrapping. Namely, the MLR estimator was used to test the significance of the direct effects. ML estimator with bootstrapping was used to assess the significance of mediated, total indirect and total effects. (e.g., total effects are useful to assess the total amount of change in an outcome variable due to one unit change in the predictor and test hypotheses; see Zyphur, 2019; also refer to section 4.1.1.). The statistically significant direct effects are shown in Figure 13. Table 20 presents the standardised regression coefficients of the effects of the predictor variables on well-being, job satisfaction and the mediators as well as the amount of variance explained by each predictor in the mediators and the outcomes. The bootstrapped standardised total effects and total indirect effects of the predictors on mediators and outcomes are shown in Table 21. Finally, Table 22 provides an overview of the test of hypotheses, including the specific indirect effects under investigation.

4.1.5.1. Hypothesis 1

Hypothesis 1 predicted that employees participating in the job crafting intervention would have reported higher levels of job crafting activity, perceived quality of the job characteristics, perceived P-J fit, coping efficacy (and goal achievement), meaning at work and well-being compared to workers in the control group. Based on the results with both, MLR and bootstrapping estimators (Tables 19 and 20), employees in the job crafting condition reported an increase in social resources (direct effect $\beta = .16$, $p < .05$; total effect $\beta = .17$, $p < .05$) and job satisfaction (direct effect $\beta = .09$, $p = .07$; total effect $\beta = .13$, $p < .05$). The job crafting intervention was not related to significant changes in job crafting activity, structural resources, hindrance and challenge job demands, P-J fit, coping, meaning, and well-being. Hypothesis 1 was, therefore, partially supported.

Figure 13

Partial mediation model (main effects only) with maximum likelihood robust (MLR) estimator correction. Direct paths between DVs, mediators, and IVs are specified. Interventions main effects
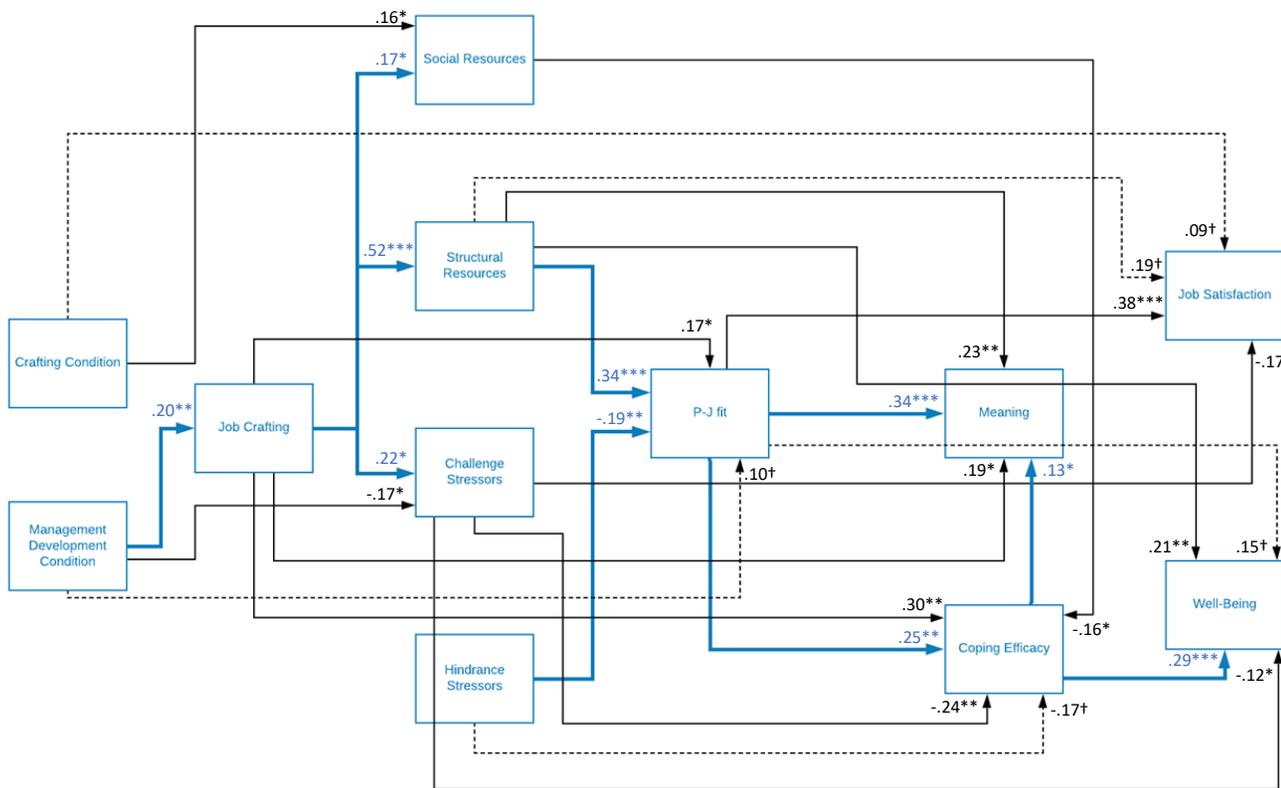
Note. Standardised path coefficients are shown. Model fit indices: RMSEA = .071; CFI = .916; SRMR= .076. Only statistically significant relationships are presented. Blue arrows represent hypothesised relationships according to the full mediation model (Figure 5). Black arrows represent other direct effects embedded in the partial mediation model. Dashed lines indicate relationships significant at $p < .10$ (note, structural resources on job satisfaction and P-J fit on well-being $p = .05$).
† $p < .1$, *$p < .05$; ** $p < .01$; *** $p < .001$.

Table 20

Partial mediation model with MLR (main effects only). Standardised regression coefficients of the effects of predictor variables on well-being, job satisfaction and mediators (controlling for T1 variables)

Predictor	Job Crafting	Social Resources	Structural Resources	Hindrance Demands	Challenge Demands	P-J fit	Coping Efficacy	Meaning at Work	Well-being	Job Sat.
	β	β	β	β	β	β	β	β	β	β
Bottom-Up Intervention	.05	.16*	-.00	-.10	-.09	.03	-.05	-.00	.05	.09†
Top-Down Intervention	.20**	.05	.07	.06	-.17*	.10†	.05	.05	-.06	-.03
Job Crafting		.17*	.52***	.07	.22*	.17*	.30**	.19*	-.10	.04
Social Resources						.04	-.16*	.03	-.05	-.04
Structural Resources						.34***	.09	.23**	.21**	.19†
Hindrance Demands						-.19**	-.17†	-.01	-.07	.02
Challenge Demands						.05	-.24**	.02	-.12*	-.17*
P-J Fit							.25**	.34***	.15†	.38***
Coping Efficacy								.13*	.29***	.13
Meaning at Work									.10	.06
R^2	.42***	.35***	44***	35***	27***	.64***	.47***	.71***	.74***	.57***

Note. $\dagger$ $p < .1$, * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 21

Partial mediation model (main effects only) with ML estimator with 1000 bootstraps. Standardised Total Effects and Total Indirect Effects (Total Ind.) of Predictors on Mediators and Outcomes

Variable	Job Crafting	Social Resources	Structural Resources	Hindrance Demands	Challenge Demands	P-J fit	Coping Efficacy	Meaning at Work	Well-being	Job Sat.
	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
	Total Ind.	Total Ind.	Total Ind.	Total Ind.	Total Ind.	Total Ind.	Total Ind.	Total Ind.	Total Ind.	Total Ind.
Bottom-Up Intervention	.05	.17*	.02	-.09	-.08	.06	-.00	.04	.05	.13*
		.00	.03	.00	.01	.04	.04	.04	.04	.04
Top-Down Intervention	.20**	.08	.03	-.04	-.12†	.15*	.18**	.17**	.04	.07
		.03	.11**	.01	.04†	.05	.12**	.12**	.10*	.10*
Job Crafting		.17†	.52***	.07	.22*	.36***	.34***	.48***	.19*	.24**
						.18**	.04	.29***	.29***	.21*
Social Resources						.04	-.15†	.03	.03	-.04
							.10	-.00	-.03	-.00
Structural Resources						.34***	.18*	.37***	.35***	.32***
							.09*	.14**	.14**	.13*
Hindrance Demands						-.19*	-.22*	-.11	-.18**	-.07
							.05	-.10*	-.10**	-.10*
Challenge Demands						.05	-.22*	.00	-.17*	-.18*
							-.01	-.01	.05	-.01
P-J Fit							.25*	.34***	.26**	.39***
									.11*	.01
Coping Efficacy								.13*	.30***	.12
									.01	-.00
Meaning at Work									.10	-.06

Note. Significance evaluated through bias corrected bootstrapped confidence intervals (**shown in Appendix 3**). † $p < .1$, *$p < .05$; ** $p < .01$; *** $p < .001$. Total effects only are shown for sequential relationships (e.g., P-J fit → Coping Efficacy).

4.1.5.2. Hypothesis 2

Hypothesis 2 predicted that higher levels of job crafting activity would be positively related to P-J fit, coping efficacy, and meaning at work. The results largely supported this hypothesis. As shown in Figure 13 and Table 20, job crafting activity was positively related to P-J fit (β = .17, p < .05), coping efficacy (β = .30, p < .01) and meaning (β = .19, p < .05). As anticipated by the general model (Figure 5), job crafting also positively related to social resources (β = .17, p < .05), structural resources (β = .52, p < .001), and challenge job demands (β = .22, p < .05). Unexpectedly, job crafting did not have a significant effect on hindrance demands. Nevertheless, hypothesis 2 was vastly supported.

4.1.5.3. Hypotheses 3, 3a, 3b

Hypothesis 3

Hypothesis 3 predicted that P-J fit mediates the positive relationship between job crafting on the one hand and H3i) meaning, H3ii) coping efficacy, H3iii) job satisfaction and H3iv) well-being on the other hand (both, P-J fit and coping efficacy were expected to boost meaning). As shown in Table 22 below, the results of the partial mediation model with ML estimator with 1000 bootstraps and bias-corrected confidence intervals (BCa CI)[28] support this hypothesis.

The positive relationship of job crafting with coping efficacy and meaning was confirmed with H2 above. As predicted, a positive relationship was also found between job crafting and job satisfaction and well-being, although the positive effect of job crafting on job satisfaction and well-being did not emerge with direct effects but could be attributed to a combination of significant total effects and total indirect effects (Table 21). Namely, job crafting had a

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[28] The diagrams with the confidence intervals of the results are provided in the Appendix 3.

significant total (β = .24, p < .01; BCa 95% CI [.054, .431]) and total indirect effect (β = .21, p <

.05; BCa 95% CI [.041, .364]) on job satisfaction and a significant total (β = .19, p < .05; BCa

95% CI [.005, .348]) and total indirect effect (β = .29, p < .001; BCa 95% CI [.141, .444]) on

well-being.

As expected, P-J fit (partially) mediated the positive relationship between job crafting

and (i) meaning. Namely, a significant specific indirect effect was found between job crafting

and meaning through P-J fit (β = .06, p < .05; BCa 95% CI [.015, .140]). Given that job crafting

had a positive direct effect on meaning, P-J fit partially mediated this relationship. In agreement

with the general model (Figure 5), P-J fit (partially) mediated relationship between job crafting

and meaning directly as well as indirectly via structural job resources (i.e., job crafting →

structural job resources → P-J fit → Meaning; β = .06, p < .01; BCa 95% CI [.027, .114]).

P-J fit did not emerge as a significant mediator (if the job characteristics were controlled

for) in the relationship between job crafting and (ii) coping efficacy (β = .04, p >.05; BCa 95%

CI [.003, .118]). As predicted by the general model, however, the positive relationship between

job crafting and coping efficacy was partially mediated by structural resources and, in turn, P-J

fit (i.e., job crafting → structural job resources → P-J fit → coping; β = .04; p < .05; BCa 95%

CI [.010, .100]). Therefore, P-J fit did (partially) mediate the relationship between job crafting

and coping efficacy via structural job resources (partial mediation due to a significant direct

effect of job crafting on coping).

As predicted, a significant specific indirect effect was also found between job crafting

and (iii) job satisfaction via P-J fit (β = .07, p < .10; BCa 95% CI [.013, .151]). In this case, P-J

fit may have fully mediated the relationship between job crafting and job satisfaction because a

direct effect of job crafting on job satisfaction was not found. In agreement with the general

model (and in a similar fashion with the mediated relationship between job crafting and meaning via P-J fit shown above), P-J fit mediated relationship between job crafting and job satisfaction directly (i.e., job crafting → P-J fit → job satisfaction) as well as indirectly via structural job resources (i.e., job crafting → structural job resources → P-J fit → job satisfaction; $\beta = .07$, $p < .05$; BCa 95% CI [.027, .136]).

Unexpectedly, P-J fit did not emerge as a significant mediator in the relationship between job crafting and (iv) well-being as a specific indirect effect of job crafting on well-being via P-J fit was not found. Inspection of the data revealed that, in line with the general model, coping efficacy ($\beta = .09$, $p < .01$; BCa 95% CI [.033, .170]) and structural job resources ($\beta = .11$, $p < .01$; 95% BCa 95% CI [.034, .208]) were the main mediators in the positive relationship between job crafting and well-being. Finally, as hypothesised, P-J fit positively predicted coping efficacy ($\beta = .25$, $p < .01$) and meaning ($\beta = .34$, $p < .001$), and coping efficacy positively predicted meaning ($\beta = .13$, $p < .05$).

In summary, in support of Hypothesis 3, P-J fit mediated the positive relationship of job crafting with meaning, job satisfaction, and coping efficacy (this last via structural job resources). P-J fit emerged as partially mediating the positive relationship between job crafting and meaning and as fully mediating the positive relationship between job crafting and job satisfaction. As expected, P-J fit also positively predicted coping efficacy and meaning, and coping efficacy positively predicted meaning. Unexpectedly, the (confirmed) positive relationship of job crafting with well-being was not mediated by P-J fit. Coping efficacy and structural job resources emerged as the main mediators in the relationship between job crafting and well-being.

Hypotheses 3a and 3b

In agreement with the general model (Figure 5), Hypothesis 3a predicted that meaning at work would have mediated the positive relationship between P-J fit and well-being, whereas Hypothesis 3b predicted that coping efficacy would have mediated the positive relationship between P-J fit and well-being. Hypothesis 3a is rejected as a significant specific indirect effect of P-J fit on well-being (or job satisfaction) via meaning was not found. As predicted, however, a positive relationship was found between P-J fit and well-being ($\beta = .15$, $p = .05$) and job satisfaction ($\beta = .38$, $p < .001$; see Tables 20 and 21 for total and total indirect effects). These findings further highlight the importance of crafting one's job to improve P-J fit (as shown above, job crafting has a direct positive effect on P-J fit).

While this specific hypothesis is rejected, inspection of the data revealed that the indirect effect of P-J fit on well-being (but not job satisfaction) via coping efficacy predicted by H3b and the general model was confirmed ($\beta = .07$, $p = .05$; BCa 95% CI [.013, .158]). Similarly, in line with H3b, a positive relationship was found between coping efficacy and well-being ($\beta = .29$, $p < .001$). Therefore, the positive effect of P-J fit on well-being is partially mediated by coping efficacy but (unexpectedly) not by meaning at work.

4.1.5.4. Hypothesis 4

Hypothesis 4 predicted that employees whose managers participated in the management development intervention would have reported higher levels of job crafting, and in turn, of a) perceived job characteristics, b) P-J fit, c) coping efficacy, d) meaning at work, e) job satisfaction, and f) well-being compared to employees whose managers were in the control group. The results supported this hypothesis.

As shown in Table 22, employees whose managers participated in the management development intervention reported higher levels of job crafting activity compared to employees in the control group (β = .20, p < .01). As introduced above and as shown in Table 20, higher levels of job crafting activity were directly related to higher levels of social (β = .17, p < .05) and structural resources (β = .52, p < .001), challenge demands (β = .22, p < .05), P-J fit (β = .17, p < .05), coping efficacy (β = .30, p < .01) and meaning (β = .19, p < .05). Job crafting also had positive significant total and total indirect effects on job satisfaction and well-being (see H3 above).

In further support of H4, specific indirect effects were found between the top-down intervention (via job crafting) and structural job resources (β = .11, p < .01; BCa 95% CI [.045, .192]); challenge job demands (β = .05, p < .10; BCa 95% CI [.009, .100]); social resources (β = .034, p = .10; BCa 95% CI [.003, .089]); P-J fit (β = .035, p < .10; BCa 95% CI [.008, .084]; also via job crafting and structural job resources: β = .036, p < .05; BCa 95% CI [.015, .071]); coping efficacy (β = .06, p < .05; BCa 95% CI [.020, .131]); and meaning at work (β = .04, p < .10; BCa 95% CI [.008, .096]).

Specific indirect effects were also found between the top-down intervention and well-being via job crafting and coping efficacy (β = .02, p = .05; BCa 95% CI [.006, .044]); between the top-down intervention and well-being via job crafting and structural job resources (β = .06, p < .02; BCa 95% CI [.007, .055]); as well as between the top-down intervention and job satisfaction via job crafting, structural job resources and P-J fit (β = .01, p < .05; BCa 95% CI [.005 - .034]). Therefore, as hypothesised, the top-down intervention had an indirect effect via job crafting on structural job resources, challenge job demands, social resources, P-J fit, coping efficacy, meaning, job satisfaction, and well-being.

Overall, in agreement with the general model and in support of H4, the top-down

intervention was related to positive effects, either directly or indirectly on every outcome in the

model except for hindrance demands. Indeed, as well as the specific effects shown above, the

intervention was directly related to job crafting (see above) as well as to P-J fit ($\beta = .10$, $p < .10$)

and challenge demands ($\beta = -.17$, $p < .05$). It also had a positive (total or total indirect) effect on

structural job resources (indirect effect via job crafting $\beta = .11$, $p < .01$); challenge demands

(total effect $\beta = -.12$, $p < .10$; indirect effect via job crafting $\beta = .05$, $p < .10$); P-J fit (total effect

$\beta = .15$, $p < .05$); coping efficacy (total effect $\beta = .18$, $p < .01$; total indirect effect $\beta = .12$, $p <$

.01); meaning at work (total effect $\beta = .17$, $p < .01$; total indirect effect $\beta = .12$, $p < .01$); well-

being (total indirect effect $\beta = .10$, $p < .05$) and job satisfaction (total indirect effect $\beta = .10$, $p <$

.05).

In conclusion, as expected, the top-down intervention was associated with a beneficial

change on every outcome under scrutiny (except for hindrance demands), either indirectly via

job crafting and the other mediators or through direct and total effects.

4.1.5.5. Hypothesis 5

Hypothesis 5 predicted that management development as training in social skills and job

design-related knowledge moderates the positive effect of a job re-design (job crafting)

intervention on job crafting and, in turn, well-being such that the effects of a job crafting

intervention on employees' job crafting and well-being would have been stronger when the

managers had received the training. The hypothesis is rejected. As introduced above, the

inclusion of the interaction term (top-down* bottom-up) to the model had a negative impact on

the fit indices in both the partial mediation model and the full mediation model. Inspection of the

models also revealed that the interaction variable did not have any significant direct or indirect

effect on any outcome. Therefore, a synergistic effect through which the two interventions interact to boost job crafting in employees could not be found.

Although H5 is rejected, the top-down intervention did have a more substantial effect on employees' job crafting (and subsequently on the other outcomes) compared to the bottom-up intervention. Therefore, training managers does boost employees' job crafting (and, in turn, well-being) as predicted, although not through a moderating role of the top-down intervention on the bottom-up one (but rather as a main effect of the top-down intervention).

4.1.5.6. Hypothesis 6

Hypothesis 6 predicted that employees participating in the intervention combining top-down and bottom-up elements would report higher levels of job crafting, and in turn, job characteristics, P-J fit, meaning at work, coping efficacy, and well-being compared to workers in control and other intervention groups (i.e., the moderated effects of an integrated, top-down and bottom-up intervention, are mediated via job crafting in line with the general model shown in Figure 5). The hypothesis is rejected as the interaction variable (top-down* bottom-up) was not related to significant changes in job crafting or other outcomes.

Table 22

Test of Hypotheses using standardised coefficients from partial mediation models (MLR and 1000 Bootstraps)

Hypotheses	Direct Effect (MLR)	Total Effect (1000 Bootstraps)	Total Indirect Effect (1000 Bootstraps)	Specific Indirect Effect (1000 Bootstraps)
1. Bottom-up Int. → Job Crafting	-	-	-	
→ Social Resources	.16*	.17*	-	
→ Structural Resources	-	-	-	
→ Challenge Demands	-	-	-	
→ Hindrance Demands	-	-	-	
→ P-J Fit	-	-	-	
→ Coping Efficacy	-	-	-	
→ Meaning at Work	-	-	-	
→ Well-Being	-	-	-	
→ Job Satisfaction	.09†	.13*	-	
2. Job Crafting → P-J fit	.17*	.36***	.18**	
→ Coping Efficacy	.30**	.34***	-	
→ Meaning at Work	.19*	.48***	.29***	
3. Job Crafting → P-J fit → Meaning at Work				.06*
(Job Crafting → Structural Res. → P-J fit → Meaning)				.06**
Job Crafting → P-J fit → Coping Efficacy				-
(Job Crafting → Structural Res. → P-J fit → Coping)				.04*
Job Crafting → Well-Being	-	.19*	.29***	
Job Crafting → P-J fit → Well-Being				-
Job Crafting → Job Satisfaction	-	.24**	.21*	
Job Crafting → P-J fit → Job Satisfaction				.07†
(Job Crafting → Structural Res. → P-J fit → Job Satisfaction)				.07*
P-J fit → Coping Efficacy	.25**	.25*		
P-J fit → Meaning at Work	.34***	.34***		
Coping Efficacy → Meaning at Work	.13*	.13*		
3.a P-J fit → Well-Being	.15†	.26**	.11*	
P-J fit → Meaning at Work → Well-Being				-
P-J fit → Job Satisfaction	.38***	.39***		
P-J fit → Meaning at Work → Job Satisfaction				- *(Continued)*

3.b Coping Efficacy → Meaning at Work → Well-Being			.07†
Coping Efficacy → Meaning at Work → Job Satisfaction			-
Coping efficacy → Well-Being	.29***	.30***	-
Coping efficacy → Job Satisfaction	-	-	-
4. Top-down Int. → Job Crafting	.20***	.20***	
Top-down Int. → Social Resources	-	-	.03
(Top-down Int. → Job Crafting → Social Resources)			.03†
Top-down Int. → Structural Resources	-	-	.11**
(Top-down Int. → Job Crafting → Structural Resources)			.11**
Top-down Int. → Challenge Demands	-.17*	-.12†	.04†
(Top-down Int. → Job Crafting → Challenge Demands)			.05†
Top-down Int. → Hindrance Demands	-	-	-
Top-down Int. → P-J fit	.10†	.15*	-
(Top-down Int. → Job Crafting → P-J fit)			.04†
(Top-down Int. → Job Crafting → Structural Resources → P-J fit)			.04*
Top-down Int. → Coping Efficacy	-	.18**	.12**
(Top-down Int. → Job Crafting → Coping Efficacy)			.06*
Top-down Int. → Meaning at Work	-	.17**	.12**
(Top-down Int. → Job Crafting → Meaning)			.04†
Top-down Int. → Well-Being	-	-	.10*
Top-down Int. → Job Satisfaction	-	-	.10*
5./6. Bottom-up*Top-down. → Job Crafting	-	-	-
→ Social Resources	-	-	-
→ Structural Resources	-	-	-
→ Challenge Demands	-	-	-
→ Hindrance Demands	-	-	-
→ P-J Fit	-	-	-
→ Coping Efficacy	-	-	-
→ Meaning at Work	-	-	-
→ Well-Being	-	-	-
→ Job Satisfaction	-	-	-

Note. The Table summarises the statistically significant findings according to the hypotheses tested. *† p < .1, *p < .05; ** p < .01; *** p < .001;* (note, P-J fit on well-being *p* = .05; Coping efficacy on Well-being via meaning *p* = .05). - indicates a non-significant coefficient (not included for clarity, presented in previous tables and the main text). H5 and H6 rejected as no interaction effects between the top-down and bottom-up interventions. In parentheses, noteworthy indirect effects embedded in the partial mediation model. Statistically significant specific indirect effects discussed in the main text are summarized in the Table.

4.1.5.7. Other Results in the Hypothesised Model

As shown in Figure 13, almost all hypothesised direct relationships between the variables in the model were confirmed. There were some unexpected exceptions. The bottom-up intervention, for instance, did not predict job crafting. Job crafting was not related to hindrance job demands. Among the job characteristics, while structural job resources and hindrance demands predicted P-J fit as anticipated, social resources and challenge demands did not predict P-J fit. Finally, while coping efficacy predicted well-being (but not job satisfaction) as anticipated by the general model, meaning at work was not, unexpectedly, related to well-being or job satisfaction.

The hypothesised indirect effects at each stage of the model were almost all confirmed. As predicted, structural job resources (but not the other job characteristics) partially mediated the relationship between job crafting and P-J fit ($\beta = .18$, $p < .001$; BCa 95% CI [.097, .275]). P-J fit partially mediated the relationship between structural job resources and meaning at work ($\beta = .12$, $p < .01$; BCa 95% CI [.056, .200] and coping efficacy ($\beta = .09$, $p < .05$; BCa 95% CI [.017, .178]). At the same time, P-J fit partially mediated the relationship between hindrance job demands and meaning ($\beta = -.096$, $p < .05$; BCa 95% CI [-.150, -.016]). Finally, as seen above, coping efficacy (but not meaning at work) partially mediated the positive relationship between P-J fit and well-being ($\beta = .07$, $p = .05$; BCa 95% CI [.013, .158]) although it did not emerge as a significant mediator in the positive relationship between P-J fit and job satisfaction.

Other notable findings were found. For instance, job crafting had a significant positive effect (either direct effect, total effect or total indirect effect) on every outcome in the model except for hindrance job demands (see Tables 19 and 20). Surprisingly, social resources had a negative impact on coping efficacy ($\beta = -.16$, $p < .05$). Structural job resources emerged as

critical for call centre agents and had a direct, total, or total indirect (positive) effect on P-J fit, coping efficacy, meaning at work, well-being, and job satisfaction (coefficients shown in Tables 20 and 21). Challenge demands, emerged as negatively related to coping efficacy ($\beta = -.24$, $p < .01$), well-being ($\beta = -.12$, $p < .05$) and job satisfaction ($\beta = -.17$, $p < .01$). P-J fit emerged as important for employees and not only positively related to well-being and job satisfaction as discussed above but also had a positive impact on meaning at work ($\beta = .34$, $p < .001$) and coping efficacy ($\beta = .25$, $p < .01$) as predicted.

Finally, coping efficacy emerged as a significant mediator (as said above coping mediated the relationship between P-J fit and well-being and between the top-down intervention and well-being via job crafting) in the relationship between job crafting and well-being ($\beta = .09$, $p < .05$; BCa 95% CI [.033, .170]), and challenge demands and well-being ($\beta = -.07$, $p < .05$; BCa 95% CI [-.146, -.020]). The latter finding further highlights (as emerged above) that challenge demands have a negative effect on agents' well-being, and this is partially explained by a worsening in coping efficacy. Coping efficacy, as expected, also significantly predicted well-being ($\beta = .29$, $p < .001$) but not job satisfaction ($\beta = .13$, $p > .05$).

4.2. Study 2 Findings

As introduced in section 3.3.6., in Study 2, it was not possible to run robust preliminary analyses on the measures (i.e., CFAs) due to the limited number of responses. However, Cronbach's alphas were calculated for each scale to determine the measures' internal consistency (Bland & Altman, 1997; Cronbach, 1951), and the measurement model was validated in Study 1 (section 4.1.2.). Given the smaller sample size, regression analyses were run on the data as follows rather than structural equation modelling. Subsequently, paired-sample t-tests were also run on each group to help understand any patterns of change and determine statistically significant mean differences between T1 and T2 in each group. It is essential to remind that unpredictable contingencies have represented a significant source of disruption in implementing Study 2 (refer to section 3.3.1.).

4.2.1. Preliminary Analyses

Cronbach's alphas were calculated for each scale to determine the measures' internal consistency (Bland & Altman, 1997; Cronbach, 1951). The internal consistency of the measures was high (i.e., $\alpha > 0.7$) as follows: job crafting (T1 α = .89; T2 α = .91); coping efficacy (T1 α = .77; T2 α = .75); meaning at work (T1 α = .93; T2 α = .91); structural job resources (T1 α = .85; T2 α = .81); social job resources (T1 α = .76; T2 α = .87); challenge (T1 α = .76; T2 α = .83) and hindrance (T1 α = .79; T2 α = .81) demands; affective well-being (T1 α = .87; T2 α = .87).

4.2.2. Hierarchical multiple regression analyses

Hierarchical multiple regression analyses with listwise deletion were run to test main and interaction effects of the interventions on the study variables (Biggs et al., 2014; Hammer et al., 2011). The intervention conditions were dummy coded with "1" representing the experimental groups (i.e., job crafting condition or management development condition) and "0" representing

the control groups. An interaction term was then calculated by multiplying the dummy variables

representing the two experimental conditions to compare the main effects of the interventions

with the result of their interaction (i.e., top-down * bottom-up). Two sets of regressions were run

in SPSS statistical software on each dependent variable. In the first equation, the baseline value

of the dependent variable was entered in step 1, and the dummy variables representing the

experimental conditions were entered in step 2. In the second equation, a further step was added

with the interaction variable entered in step 3. The following scales' scores were standardised to

ensure that the subscales with larger items did not dominate the variable scores: 1) job crafting

scale, 2) social resources scale, and 3) structural resources scale. Considering the limited amount

of data in each condition, the alpha level (α) was set to $p < .10$ to increase the power of the tests.

It must be noted that the possibility of type I errors (i.e., rejecting a true null hypothesis) may

have increased in this way. Nevertheless, the possibility of type II errors (missing to detect a

genuine effect) was deemed more substantial than the risk of type I errors. Hence, it was decided

to set a higher probability of type I errors to mitigate the risk of type II errors. Indeed, the

difficulties and disruptions experienced in Study 2 led to a smaller sample size than initially

planned, reducing the statistical power of the tests and increasing the risks of type II errors (see

Field, 2017).

A power analysis was run to determine the power of the regression analyses to find a

statistically significant effect at different α-levels (i.e., $p < .05$ and $p < .10$). The effect size was

estimated based on Study 1's findings, calculating the effect size of the combined top-down and

bottom-up interventions on job crafting (an R^2 change of 0.05 was estimated). Based on Study

2's sample size, it emerged that setting the α-level to $p < .05$ led to a lower statistical power than

setting the α-level to $p < .10$ (respectively a test power of 0.16 versus 0.26). In both cases, the

power of the tests was below the desirable level (i.e., 0.8; Field, 2017), thus indicating a high risk

of type II errors. Because the study was implemented in over one and a half years (including

planning, implementation, delays, disruptions, as discussed in Section 3.3.1.), it was impossible

to replicate the study in the same Policing context using a larger sample, as it may be advisable.

Instead, it was deemed appropriate to set a higher alpha-level of $p < .10$ than the more

conventional α-level of $p < .05$ and increase the test power accordingly, limiting the probability

of rejecting genuine effects although increasing the risk of type I errors.

As discussed earlier (section 3.3.1.) and below (section 5.4.), the findings of Study 2

should be taken with caution and interpreted considering the disruptions experienced and in light

of the study strengths (i.e., lessons learnt by implementing the interventions in a real, extremely

complex, and changing context) and weaknesses (i.e., increased risk of type I errors).

4.2.2.1. Assumptions

In each regression, multicollinearity was assessed by checking tolerance values (tolerance

values smaller than 0.1 or VIF greater than 10 may be a cause of concern; Laerd Statistics, 2015;

Field, 2017). Outliers were assessed by inspecting studentized deleted residuals (values within

±3 standard deviations are considered accurate observations). Influential cases were assessed by

the leverage values (values greater than 0.2 should be inspected) and Cook's distance (values

above 1 may be influential; Field, 2017). Linearity and homoscedasticity were assessed by

inspection of the plot of studentized residuals against the predicted values and inspection of

partial regression plots (and in some cases by testing normality of studentized residuals by

Shapiro-Wilk's test). Independence of residuals was assessed by Durbin-Watson statistic (values

close to 2.0 indicate independence of residuals, Laerd Statistics, 2015; Field, 2013). Normality

was assessed by inspection of Q-Q Plots or histograms of standardised residuals (or through inspection Q-Q Plots of the studentized residuals).

Overall, the assumptions for hierarchical regression were met. Some analyses showed some leverage values were higher than 0.2, but most were below 0.3, and none was above 0.5. Considering the sample size and the number of parameters, high leverage values can be considered 0.47 (see Cohen et al., 2003; Laerd Statistics, 2015), and values were below this threshold. Very few influential cases or outliers were detected (all Cook's distance except one [see below] < 1, studentized residuals had values within ±3 standard deviations). There were no cases of multicollinearity (tolerance values < 0.1). Although the assumptions were largely met, some exceptions required further investigation as follows.

A potential outlier was detected in the regression predicting T2 structural resources. Namely, a case showed a studentized deleted residual greater than three standard deviations. The same case also emerged as a potentially influential case (Cook distance > 1). The case, however, did not show a standardized residual greater than three standard deviations nor a high leverage value. Inspection of the case did not reveal abnormalities (e.g., data entry errors). Assessment of the histogram of standardized residuals showed a slightly non-normal distribution (slight positive skewness). However, with small samples, the histogram may not be a reliable way to assess normality (P-P plots and Q-Q plots are preferable; Laerd Statistics, 2015) and the P-P plot showed a normal distribution. Nevertheless, considering the possible presence of an influential case, the regressions predicting T2 structural resources were also run with (1000) bias-corrected bootstraps (robust procedures such as bootstrapping are favourable over methods such as transformation to deal with potential violations of assumptions; Field, 2017).

Finally, a possible non-normal distribution of residuals was detected in some regressions according to the histograms' inspection. Visual inspection of P-P plots and Q-Q Plots, however, showed that data points were overall always aligned on the diagonal line. As said above, with small samples, the histogram may not be reliable to test normality; nevertheless, when normality was in doubt, the regressions' results were compared with the bias-corrected bootstrapped estimates (with 1000 resamples).

4.2.2.2. Regressions Results

Table 23 shows the results of eleven separate multiple regressions with baseline values (model 1), and the experimental conditions (model 2) entered as independent variables and the main variables as dependent variables. Subsequent regression analyses were run by adding (model 3) the interaction term between the experimental conditions as another independent variable. The alpha level was set to $p < .10$.

In all the analyses except one (see below), the addition of the two experimental conditions (model 2) and the interaction variable (model 3) to the baseline values of each dependent variables (model 1) did not lead to a significant change in R^2. The only exception was the regression predicting T2 well-being, where the addition, in model 3, of the interaction term to the baseline values and the main experimental conditions led to a significant increase in total variation explained. As introduced earlier, in the other analyses, the addition of the two experimental conditions and the interaction variable to the baseline values of each dependent variables did not lead to a significant increase in total variation explained. Nevertheless, the full models are almost all statistically significant (i.e., the models significantly predict the dependent variables; see F values in Table 23). It follows a summary of the results and test of hypotheses.

Table 23

Study 2. Effects of the Interventions on Outcomes (N=34)

Dependent Variables	Independent variables	Regression Model 1 - Baseline Value			Regression Model 2 - Main Effects Only			Regression Model 3 - Interaction Included		
		β	R^2 (F)	ΔR^2 (ΔF)	β	R^2 (F)	ΔR^2 (ΔF)	β	R^2 (F)	ΔR^2 (ΔF)
Job Crafting (T2)	Job Crafting (T1)	.78***	.76 (103***)	.76 (103***)	.78***	.76 (32.3***)	.00 (.01)	.78***	.77 (24***)	.01 (1.0)
	Bottom-Up Condition				-.01			-.11		
	Top-Down Condition				-.00			-.21		
	Interaction				-			.29		
Social Resources (T2)	Social Resources (T1)	.61***	.30 (12.6***)	.30 (12.6***)	.63***	.32 (4.4**)	0.2 (.47)	.73***	.36 (3.8*)	0.4 (1.8)
	Bottom-Up Condition				-.23			-.51		
	Top-Down Condition				-.09			-.64		
	Interaction				-			.80		
Structural Resources (T2)	Structural Resources (T1)	.30*	.11 (3.9*)	.11 (3.9*)	.32**	.21 (2.5*)	.09 (1.6)	.35**	.23 (2.0)	.02 (.86)
	Bottom-Up Condition				-.42*			-.58*		
	Top-Down Condition				.08			-.25		
	Interaction				-			.48		
Structural Resources (T2) [1000 Bootstraps]	Structural Resources (T1)	.30*	.11 (3.9*)	.11 (3.9*)	.32	.21 (2.5*)	.09 (1.6)	.35	.23 (2.0)	.02 (.86)
	Bottom-Up Condition				-.42			-.58		
	Top-Down Condition				.08			-.25		
	Interaction				-			.48		
Hindrance Stressors (T2)	Hindrance Stressors (T1)	.45**	.18 (6.8**)	.18 (6.8**)	.48***	.23 (2.8*)	.05 (.88)	.40**	.27 (2.6*)	.04 (1.7)
	Bottom-Up Condition				.12			-.09		
	Top-Down Condition				.30			-.26		
	Interaction				-			.74		
Challenge Stressors (T2)	Challenge Stressors (T1)	.31	.06 (2.1)	.06 (2.1)	.37	.11 (1.1)	.05 (.75)	.37	.15 (1.3)	0.4 (1.4)
	Bottom-Up Condition				.08			-.16		
	Top-Down Condition				.33			-.18		
	Interaction				-			.70		

(Continued)

Outcome (T2)	Predictor									
Person-Job Fit (T2)	Person-Job Fit (T1)	.70***	.40	.40	.73***	.46	.06	.73***	.48	.01
	Bottom-Up Condition		(21.1***)	(21.1***)	-.36*	(8.4***)	(1.6)	-.49*	(6.4***)	(.78)
	Top-Down Condition				.01			-.26		
	Interaction				-			.38		
Coping Efficacy (T2)	Coping Efficacy (T1)	.79***	.58	.58	.79***	.63	.05	.82***	.64	.01
	Bottom-Up Condition		(43***)	(43***)	-.29*	(16.5***)	(2.0)	-.39**	(12***)	(.71)
	Top-Down Condition				-.05			-.26		
	Interaction				-			.28		
Meaning at Work (T2)	Meaning at Work (T1)	.40***	.27	.27	.42***	.37	.10	.42***	.38	.00
	Bottom-Up Condition		(11.7***)	(11.7***)	-.45**	(5.7***)	(2.3)	-.37	(4.3***)	(.26)
	Top-Down Condition				.03			.20		
	Interaction				-			-.23		
Job Satisfaction (T2)	Job Satisfaction (T1)	.75***	.41	.41	.76***	.44	.03	.76***	.44	.00
	Bottom-Up Condition		(21.3***)	(21.3***)	-.11	(7.3***)	(.64)	-.07	(5.4***)	(.11)
	Top-Down Condition				-.19			-.09		
	Interaction				-			-.14		
Well-Being (T2)	Well-Being (T1)	.52***	.30	.30	.51***	.39	.09	.56***	.46	.07
	Bottom-Up Condition		(13.1***)	(13.1***)	-.38	(6.0***)	(2.0)	-.69**	(5.8***)	(3.5*)
	Top-Down Condition				-.26			-.41		
	Interaction				-			.92*		

Note. Significance level is set at $p < .10$. Unstandardised coefficients are shown. Listwise deletion is used. Bottom-up condition: 0 = control group; 1 = job crafting intervention group; Top-down condition: 0 = control group; 1 = management development intervention group; Interaction: 1(job crafting intervention group), 1(management development intervention group); $N = 34$. * $p < .10$, ** $p < .05$, *** $p < .01$. The following scales have standardised scores: job crafting, structural resources, social resources.

Hypothesis 1 predicted that employees participating in the job crafting intervention would have reported higher levels of job crafting activity, perceived quality of the job characteristics, perceived P-J fit, coping efficacy (and goal achievement), meaning at work and well-being compared to workers in the control group. Overall, from the analyses, it emerges a general worsening of outcomes in the job crafting condition, with the latter significantly predicting four adverse outcomes. Namely, in Police officers who participated in the job crafting workshop, and whose responses were available at both time points (i.e., 25 officers) relative to others, there has been a worsening in perceived person-job fit ($\beta = -.36$, $p < .10$), in coping efficacy ($\beta = -.29$, $p < .10$), in perceived meaning at work ($\beta = -.45$, $p < .05$), and in structural resources ($\beta = -.42$, $p < .10$)[29]. Accordingly, Hypothesis 1 is rejected considered that the job crafting condition did not predict positive outcomes; instead, it was related to adverse outcomes.

While these results might suggest that the job crafting workshop, in general, has hurt Police officers, as introduced above, specific unrelated factors might have determined these adverse outcomes in the experimental group. For instance, the fact that some teams in the experimental group have changed their line managers may have had a negative impact on Police officers at T2. Similarly, a worsening in structural resources in the experimental group may reflect a general deterioration in working conditions (unrelated to the intervention) in the units in the experimental group.

Hypotheses 2, **and 3** could not be tested in Study 2 because the limited amount of data did not allow to test the general structural model with SEM.

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[29] Note, the (1000) bias-corrected bootstrapped estimates did not reveal a significant effect of the bottom-up intervention on T2 structural resources; therefore, the potential outlier outlined in the assumptions section (4.2.2.1.) may have influenced the result of the regression on T2 structural resources.

Hypothesis 4 predicted that employees whose managers participated in the management development intervention would have reported higher levels of job crafting, and in turn, of a) perceived job characteristics, b) P-J fit, c) coping efficacy, d) meaning at work, e) job satisfaction, and f) well-being compared to employees whose managers were in the control group. This hypothesis is also rejected. Indeed, the top-down condition did not significantly predict any outcome.[30]

Hypothesis 5 predicted that management development as training in social skills and job design-related knowledge moderates the positive effect of a job re-design (job crafting) intervention on job crafting and, in turn, well-being such that the effects of a job crafting intervention on employees' job crafting and well-being would have been stronger when the managers had received the training. Hypothesis 5 is partially accepted. Indeed, a moderated effect was found through which the top-down and bottom-up interventions enhance well-being (β = .92, $p < .10$). In support of the moderation effect, simple slope test (Figure 14) revealed a significant decrease in well-being at T2 in the job crafting group compared to the control group (*t-value* for slope = -2.469, $p < .05$) for participants whose supervisors did not receive the top-down intervention. Conversely, participants in the job crafting group whose supervisors also received the top-down intervention slightly (not significantly) increased their well-being level compared to the control group (*t-value* for slope = 0.569, $p > .05$). No other significant changes in *R2* were observed in any of the regressions run between model 1 and model 2 and between model 2 and model 3. This finding partially supports the central hypothesis according to which

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[30] Note. The minimal amount of responses from participants in the top-down condition ($n = 11$) and from participants who received both interventions ($n = 8$) do not allow to draw robust conclusions regarding the effects of the top-down intervention and the integrated intervention.

management development as training in social skills and job design-related knowledge

moderates the effect of a job crafting intervention on well-being.

Hypothesis 6 could not be tested in Study 2 because the limited amount of data did not

allow to test the general structural model with SEM.

Figure 14

*Study 2. Two-way interactions of the job crafting intervention and the management development
intervention on T2 well-being controlling for T1 well-being values*
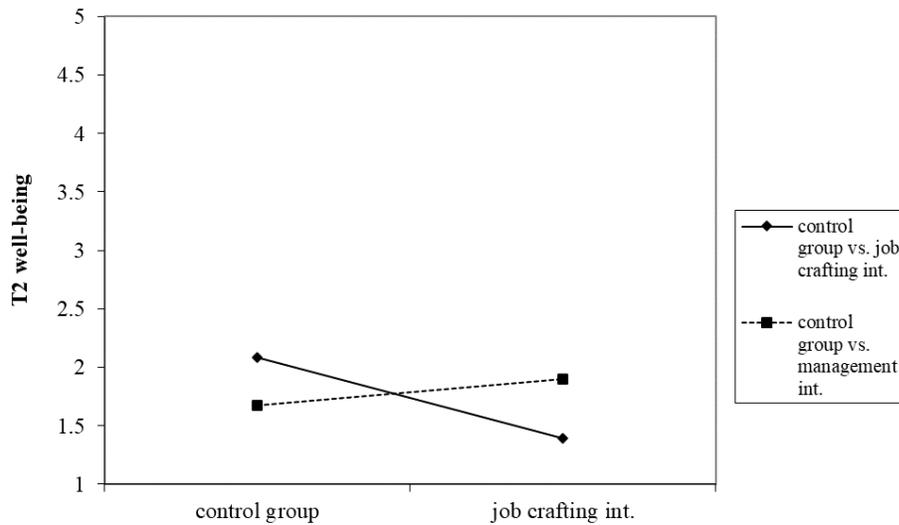
4.2.3. Paired-samples T-tests

In addition to hierarchical multiple regressions, paired-samples t-tests (Table 24) were

run on each dependent variable for each group (i.e., top-down condition, bottom-up condition,

top-down and bottom-up condition, no intervention). Besides, t-tests were also run on the

subscales of the primary variables to determine any other significant effect. In every analysis, the

difference scores for the post-test and pre-test were used to assess normality and determine the

presence of outliers. When extreme outliers were detected in the boxplots (cases greater than 1.5

box-lengths from the edge of the box) or when normality was in doubt, robust bootstrapped

confidence intervals were used (Field, 2017).

As shown in Table 24 below, among Police officers who participated in the job crafting

workshop and whose data were available at T1 and T2 ($N = 25$) no significant effects were found

amongst the main variables of the study. Three significant effects were found when testing the

subscales. Namely participants in the job crafting condition reported (1) a significant increase in

job autonomy at T2 ($M = 3.58$, $SD = 0.70$) as opposed to T1 ($M = 3.3$, $SD = 0.77$) $t(22) = 2.296$,

$p < .05$. They reported (2) a significant decrease in support from colleagues at T2 ($M = 3.8$, $SD =$

0.74) as opposed to T1 ($M = 4.0$, $SD = 0.96$) $t(22) = -1.746$, $p < .10$. Finally, participants in the

job crafting condition reported (3) a significant increase in the job crafting subscale of decreasing

hindrance demands at T2 ($M = 2.54$, $SD = 0.71$) as opposed to T1 ($M = 2.2$, $SD = 0.82$) $t(24) =$

3.059, $p < .01$. No other significant effects were found in this group.

Table 24

Study 2. Descriptive Statistics and t-test Results in the experimental groups for the main variables and the statistically significant subscales

Condition	Outcome	Pre-test		Post-test		n	95% CI for Mean Difference	r	t	df
		M	SD	M	SD					
Bottom-up	Job Crafting	-.10	.81	-.13	.67	25	-0.19, 0.14	.87**	-.28	24
	Coping	3.40	.52	3.37	.60	24	-0.17, 0.10	.85**	-.56	23
	Meaning	3.08	.76	3.16	.67	24	-0.17, 0.32	.67**	.64	23
	P-J fit	3.27	.60	3.17	.72	24	-0.31, 0.10	.73**	-1.0	23
	Challenges	3.54	.59	3.57	.80	24	-0.33. 0.40	.23	.19	23
	Hindrances	2.99	.61	2.97	.69	24	-0.35, 0.31[a]	.26	-.13	23
	Social Res.	-.04	.70	-.07	.71	23	-0.40, 0.15	.59**	-.91	22
	Struct. Res.	-.004	.78	-.15	.63	23	-0.16, 0.00	.63**	-1.2	22
	Well-Being	3.64	.69	3.60	.81	23	-0.32, 0.24	.63**	-.29	22
	Job Sat.	2.61	.58	2.62	.71	23	-0.22, 0.30[a]	.64**	.37	22
	(Colleagues Support)	4.00	.96	3.79	.64	23	-0.44, 0.03	.66**	-1.7*	22
	(Job Aut.)	3.29	.77	3.58	.70	23	0.43, 0.59[a]	.68**	2.3**	22
	(Decreasing hindrances)	2.2	.82	2.54	.71	25	0.1, 049	.81**	3.1**	24
Top-Down	Job Crafting	-0.99	.79	-.12	.75	11	-0.30, 0.26	.85**	-.16	10
	Coping	3.51	.62	3.50	.58	11	-0.29, 0.27	.76**	-.09	10

	Meaning	3.13	.95	3.32	.59	11	-0.35, 0.74	.52	.79	10
	P-J fit	3.22	.54	3.24	.70	11	-0.32, 0.35	.69**	.10	10
	Challenges	3.50	.46	3.75	.62	11	-0.25, 0.76	.06	1.1	10
	Hindrances	2.66	.80	2.98	.77	11	-0.90, 0.76[a]	.41	1.2	10
	Social Res.	-.11	.81	-.17	.59	10	-0.43, 0.31	.81**	-.35	9
	Struct. Res.	-.19	.85	-.03	.60	10	-0.37, 0.70	.52	.69	9
	Well-Being	3.8	.64	4.0	.73	10	-0.14, 0.48	.80**	1.2	9
	Job Sat.	2.8	.42	2.7	.67	10	-0.32, 0.13	.94**	-1.0	9
	(Develop. Opp.)	2.8	.61	3.2	.67	10	0.00, 0.73	.44	1.8*	9
Integrated	Job Crafting	-.23	.87	-.17	.82	8	-0.32, -0.43	.86**	.36	7
	Coping	3.37	.49	3.6	.44	8	-0.31, 0.28	.71**	-.12	7
	Meaning	3.21	.89	3.19	.67	8	-0.56, 0.52	.68*	-.08	7
	P-J fit	3.25	.44	3.22	.76	8	-0.45, 0.40	.76**	-.11	7
	Challenges	3.41	.47	3.87	.65	8	0.00, 0.91[a]	.29	1.8*	7
	Hindrances	2.93	.78	3.27	.61	8	-0.14, 0.91[a]	.02	.96	7
	Social Res.	-.31	.87	-.23	.96	7	-0.43, 0.59	.82**	.38	6
	Struct. Res.	-.32	1.0	-.10	.69	7	-0.6, 1.0	.51	.63	6
	Well-Being	3.7	.67	4.0	.80	7	-0.19, 0.73	.78**	1.4	6
	Job Sat.	2.71	.48	2.57	.78	7	-0.49, 021	.93**	-1.0	6
	(Job Aut.)	3.17	.85	3.57	.71	7	0.06, 0.73	.90**	2.9**	6

Note. In parentheses = statistically significant subscale; * $p < .10$; ** $p < .05$; a.= based on BCa 95% Bootstrapped Confidence Intervals. No significant effects were found in the main variables for the no-intervention group ($n = 6$) except for a significant increase in affective well-being.

Taken together with the regression analyses results, these findings on the subscales for the experimental (job crafting) group indicate that this latter might have gone through a turbulent time during the implementation of the study. Indeed, a decrease in structural resources (emerged through regressions) and support from colleagues (emerged trough t-test) and an increase in the job crafting subscale of decreasing hindrance demands (emerged trough t-test) may suggest a general worsening of job characteristics in this group.

Amongst participants in the top-down condition, no significant changes were detected in the main variables tested. The only significant effect found was an increase in development opportunities at T2 ($M = 3.2$, $SD = 0.67$) as opposed to T1 ($M = 2.8$, $SD = 0.61$) $t(9) = 1.8$, $p <$ .10. Similarly, no significant changes were detected in the main variables tested in the integrated (top-down*bottom-up) intervention. Significant changes were only detected in two subscales. Namely, participants who received both interventions reported an increase in challenge demands

at T2 ($M = 3.9$, $SD = 0.65$) as opposed to T1 ($M = 3.4$, $SD = 0.47$) $t(7) = 1.8$, $p < .10$ as well as an increase in job autonomy at T2 ($M = 3.6$, $SD = 0.71$) as opposed to T1 ($M = 3.2$, $SD = 0.85$) $t(6) = 2.9$, $p < .05$.

Finally, amongst participants who did not receive any intervention ($n = 6$) a significant increase in well-being was found at T2 ($M = 3.9$, $SD = 0.3$) as opposed to T1 ($M = 3.2$, $SD = 1.0$) $t(5) = 2.038$, $p < .10$. No other significant or notable effects were found. Overall, the results of the *t*-tests indicate that organisational factors and changes might have had a substantial impact on the results, as evident in a significant increase in well-being in the no-intervention group.

Chapter 5 Discussion

The present research's primary objective was to investigate the synergies between bottom-up and top-down elements in the context of job re-design. Specifically, the thesis aimed to assess whether the integration of bottom-up and top-down job re-design elements augmented the positive effects of individual bottom-up and top-down job re-design interventions.

To pursue this primary objective, I followed different lines of inquiry to address simultaneously relevant gaps in the literature. Namely, the thesis aimed to (1) assess the impact of a bottom-up job crafting intervention based on (a) a new conceptualisation of job crafting, and (b) a well-powered design on employees' job crafting behaviours and related psychosocial outcomes. (2) Evaluate the effects of a top-down management development intervention on employees' job crafting behaviours and related outcomes. (3) Assess whether the top-down intervention moderated the positive effects of the bottom-up intervention. (4) Investigate the mechanisms through which job crafting (and the interventions via job crafting) elicited the hypothesised outcomes while simultaneously assessing (a) the role of variables such as P-J fit, meaning at work, and coping efficacy in the process of job crafting and (b) the impact of job re-design on different well-being dimensions.

In Study 1, it was possible to meet these aims and thoroughly test the hypotheses. In Study 2, as discussed earlier, significant disruptions have been experienced in the implementation process, and the hypotheses could be only partially tested. Because the two studies differ in terms of context, implementation and implementation difficulties, sample size, data analysis strategy, and ability to test the hypotheses comprehensively, they will be discussed separately with the primary focus of the chapter being on the most robust Study 1.

In sections 5.1 to 5.1.4. the findings of the main study are discussed in relation to the different lines of enquiry introduced above. Subsequently (section 5.2.), the findings of Study 2 are discussed concerning the effects of the bottom-up intervention in a Police context characterised by considerable change. As a brief reminder of the findings, Study 1 mostly supported the hypotheses. Participants in the job crafting intervention reported higher levels of job satisfaction and social resources than participants in the wait-list control group. However, no significant differences were found between the experimental and wait-list group in the other variables measured. The top-down intervention had a positive effect on each variable under scrutiny (except hindrance demands) either directly or indirectly (i.e., via job crafting). With minor exceptions, the findings of Study 1 supported the hypothesised structural model of job crafting (Figure 5) and confirm the mechanisms through which job crafting is theorised to work. Unexpectedly, an interaction effect of the two interventions was not found. In Study 2, the job crafting intervention was related to adverse outcomes (a decrease in P-J fit, coping, meaning, and structural resources). An interaction effect of the (top-down and bottom-up) interventions on employees' well-being was found. However, the disruptions experienced in Study 2 imply that the latter's findings should be interpreted with caution (note, the significance level in Study 2 was increased to $p < 1.0$ to increase the power of the tests). A more in-depth discussion of the findings follows as introduced above.

5.1. Study 1 Discussion

5.1.1. The effects of a new job crafting intervention in contact centres

To pursue the first line of inquiry, I designed and implemented a bottom-up job crafting intervention based on a new operational definition of job crafting. This operational definition integrated the two main conceptualisations of job crafting found in the literature (i.e., Tims &

Bakker, 2010; Wrzesniewski & Dutton, 2001) and added new relevant theoretical elements. The intervention was designed by combining the most relevant and common elements found in the previous job crafting interventions while addressing specific limitations. Methodologically, the thesis aimed to address the limitations of previous research (e.g., short follow-ups, small samples) to ensure that the conclusions drawn were as robust as possible.

The findings of Study 1 provided partial support for the effectiveness of the job crafting intervention in call-centre agents four months after its implementation. It was hypothesised (H1) that employees participating in the job crafting intervention would have reported higher levels of job crafting, perceived job characteristics, P-J fit, coping efficacy, meaning at work, well-being, and job satisfaction compared to workers in the control group. In partial support of H1, SEM results confirmed that participants in the job crafting experimental group reported increased job satisfaction (note, total effect $p < .05$; direct effect $p = .07$) and social resources four months after the intervention compared to a wait-list control group. Therefore, as expected, the intervention was beneficial to enhance the perceived social resources and cognitive well-being (i.e., job satisfaction) in employees, although these effects were not explained by an increase in job crafting behaviour. These positive outcomes could be due to intervention-related elements (i.e., an increase in crafting towards strengths or interests; Kooij et al., 2017) that were not directly tested by the measure used. A further and more detailed explanation for the mechanisms that led to the positive outcomes is provided in section 5.1.1.4.

It should be noted that although an increase in social resources can be interpreted positively (Jolly et al., 2020), the findings of the structural model (section 5.1.4.) indicate that it can also have negative consequences (i.e., a decrease in coping efficacy). This aspect will be further discussed in section 5.1.4.1. However, the positive direct effect of the intervention on

social resources is interpreted positively in agreement with previous research showing a link between social resources and positive outcomes such as work engagement (Jolly et al., 2020; Sarti, 2014; refer to section 5.1.1.4. for alternative explanations for the effect of the intervention on social resources). The variables measured may have missed detecting the positive effects of social resources on specific work outcomes given that aspects like vigour, dedication, and absorption (i.e., work engagement; Sarti, 2014) have not been measured. Simultaneously, the mediators included in the model may have failed to capture the indirect mechanisms through which social resources elicit positive outcomes such as job satisfaction. For instance, previous research has shown that work engagement may fully mediate the relationship between specific antecedences and job satisfaction (Karanika-Murray et al., 2015). Accordingly, work engagement may need to be included in a structural model to detect social resources' positive effect on job satisfaction. This said, unexpectedly, the intervention was not beneficial to improve the other predicted outcomes (as discussed in sections 5.1.1.1 to 5.1.1.3).

On the one hand, the mixed findings mirror most previous research that generally found mixed or limited evidence of the effectiveness of job crafting interventions. On the other hand, Study 1 provide a significant theoretical contribution by showing that the beneficial effects of a job crafting intervention are sustained over time and can also be found in larger samples than most previous research. With a few exceptions, previous research had limitations that make it difficult to draw robust conclusions regarding the effectiveness of job crafting interventions.

Recently, for instance, Kuijpers et al. (2020) found that a job crafting intervention was positively related to the job crafting strategy of crafting towards interests (which, in turn, positively related to absorption and dedication) amongst employees with a high workload. More broadly, however, participants in the experimental group did not report an increase in any

expected outcomes (i.e., job crafting, dedication, absorption, and vigour) compared to the control

group. Moreover, the follow-up was administered only one/two weeks after the second

workshop. A short follow-up (which does not determine whether the effects of an intervention

are sustained over time) makes it hard not to question whether the Hawthorne effect influenced

the effects found. The latter refers to a non-specific treatment response where a behaviour

change reflects a motivational effect to the attention, interest or care participants experience

through assessment and observation (Sedgwick & Greenwood, 2015). The Hawthorne effect may

imply that a behaviour change (e.g., an increase in crafting towards interests) verifies in the

experimental group for reasons other than the experiment and decline soon after an intervention

(Sedgwick & Greenwood, 2015). Considering the short follow-up, participants in the

experimental group may have completed the T2 questionnaire experiencing a heightened sense

of motivation (following the very recent experience of the intervention and the attention received

during this), which was reflected in the findings.

Previously, van den Heuvel et al. (2015), van Wingerden et al. (2016), van Wingerden,

Bakker, et al. (2017a, b), Sakuraya et al. (2016), Demerouti et al. (2017), Kooij et al. (2017), and

Costantini and Sartori (2018) also provided some mixed or partial results on the effectiveness of

job crafting interventions on outcomes such as positive affect or work engagement. However,

these interventions had limitations such as short follow-ups, small samples, or no control group

(e.g., Sakuraya et al., 2016) that make it difficult to determine whether the effects (or lack of)

found were due to the intervention, to unrelated factors (e.g., Hawthorne effect) and whether or

not these effects would have faded away with time (Kuijpers et al., 2020). The present study

contributes to the literature by using a longer time frame and a larger sample (as advised by

Demerouti et al., 2017; Dubbelt et al., 2019; van den Heuvel et al., 2015; van Wingerden et al.,

2016) to show that the job crafting intervention was effective to facilitate specific positive outcomes four months after the intervention.

Studies with longer intervals between pre- and post-tests provided further support for the long-term benefits of job crafting interventions on employees' well-being and perceived job characteristics, although the findings are mixed. For example, Gordon et al. (2018) found that medical specialists who participated in a job crafting intervention reported higher levels of health and work engagement and lower exhaustion levels than a control group three months after the intervention. Van Wingerden, Bakker, et al. (2017a) found that teachers who participated in a job crafting intervention reported higher feedback and development opportunities than a control group one year (T3) after the intervention. The same outcomes, however, were not found two weeks after the intervention (T2). Similarly, an increase in self-efficacy was detected in the experimental group between T2 and T3 and not between T1 and T2. These findings may indicate that job crafting interventions can take some time to show their effects. Nevertheless, van Wingerden, Bakker et al. (2017a) did not find support for the intervention's beneficial effect on resilience, work engagement (and job demands).

Dubbelt et al. (2019) found that a job crafting intervention was effective to enhance university employees and academics' levels of job crafting (seeking resources and decreasing demands), work engagement and, indirectly (via seeking resources), career satisfaction and task performance six weeks after the intervention. Although longer compared to some of the studies cited earlier (e.g., van den Heuvel et al., 2015), the follow-up might be too short to determine the intervention's long-term effects, as Dubbelt et al. (2019) acknowledged.

Among the studies that used a longer time frame to evaluate the intervention, Sakuraya et al. (2020) did not find support for a beneficial effect of a job crafting intervention on

participants' work engagement levels (and job crafting) two months or five months after the intervention. Only participants who showed lower job crafting levels reported a slight increase in work engagement two months after the intervention. Sakuraya et al.'s (2020) findings are notable since the study used the larger sample used in any previous job crafting intervention (about the same sample size as in the present study, i.e., $N > 260$). Their results suggest that limitations in the design or implementation of the intervention may have diminished its effectiveness. The authors argued that a possible reason for the lack of significant effects was the number of group sessions, that compared to other studies such as van Wingerden, Bakker et al. (2017b), van Wingerden, Derks, et al. (2017), or Gordon et al. (2018) were inferior (two versus three or four in these last studies). The present study challenges this conclusion and shows that some beneficial effects of a job crafting intervention can be detected four months after implementing only one group session. As introduced in the Method chapter, it was not possible to carry out the follow-up sessions in the present study. Nevertheless, the positive effects found suggest that better outcomes could have followed the present study's participation if the intervention had been implemented fully (and arguably using volunteers; see below section 5.1.1.3.). Future studies could implement the intervention fully to test this claim.

Other studies that used a longer frame to evaluate the intervention also reported mixed findings. In line with Sakuraya et al. (2020), Hulshof et al. (2020) did not find support for the beneficial effects of a job crafting intervention on employees' work engagement three months after the intervention. However, a decline in empowerment was detected in the control group and not in the experimental group. Similarly, exploratory analyses (i.e., t-tests) showed that participants in the control group (but not in the experimental group) experienced a decline in work engagement at T2. Finally, Demerouti and colleagues (2020) found that following a job

crafting intervention, employees of a retail organisation reported lower exhaustion levels (and higher levels of increasing challenges, change attitude, and safety behaviour) eight weeks after attending the workshop in job crafting. However, a tiny control group ($N = 16$) does not allow us to draw robust conclusions from this study.

From the above, it emerges that, in line with the present study, interventions that used more robust designs and longer follow-ups provided some support for the beneficial effects of job crafting interventions. Nevertheless, the findings are mixed, and some studies did not find significant positive outcomes. Further research could include qualitative elements following the intervention's implementation to understand what facilitated or hindered the participants' job crafting efforts. It should be noted that all the studies with more robust designs (except for Sakuraya et al., 2020) were implemented in the Netherlands. Accordingly, the present study represents the first research to support the positive, long-term effect of a job crafting intervention on job satisfaction and social resources in a different country. As introduced earlier, the intervention did not have a beneficial effect on the other outcomes.

5.1.1.1. Alternative Explanations. (1) Call-centre environment

Several factors might explain why the job crafting intervention was not related to positive changes in job crafting, structural resources, job demands, P-J fit, coping, meaning, and well-being. The first factor is the call-centre environment where, unless team leaders have a supportive attitude and provide a safe space for job crafting (see below, Deery et al., 2002; McClelland et al., 2014), there might be limited opportunities for proactive behaviours. Moreover, it might be difficult in call-centres to maintain a positive workplace experience regardless of organisational changes (Holman & Axtell, 2016).

Call-centres are characterised by work design that disempowers the workforce (McClelland et al., 2014). The introduction of more advanced technologies to improve customer service has led to work environments where call length is measured by minutes or seconds, monitoring systems (and team leaders) evaluate employees and ensure compliance with a rigid set of operating procedures (Holdsworth & Cartwright, 2003). Particularly invasive forms of workplace control and performance monitoring characterise call-centres (Deery et al., 2002; Mellor et al., 2015). Agents are often expected to adhere to strict call duration guidelines and follow a tight script to start and end the conversations with customers (Mellor et al., 2015). The antithetical pressures that agents have to perform well (i.e., short calls) while providing a quality service (i.e., solve customers' issues) can represent a significant source of anxiety for employees and even lead to emotional exhaustion (Deery et al., 2002). Furthermore, agents not only need to maintain sustained levels of interpersonal relations with customers (which can lead to burnout; Deery et al., 2002), and in a growing fashion, dealing with customers with mental health issues (e.g., threatening suicide; as reported by participants in Study 1). They may also be victims of disrespectful, hostile, abusive, or even inhuman behaviours from customers given the social and technological distance (i.e., lack of visual/physical contact) between the two parties (Deery et al., 2002; Korczynski, 2003). Not surprisingly, the low job variety, limited autonomy, poor-quality feedback, tight monitoring systems, and the emotional demands experienced by call-centre agents translate into lower well-being, health and job satisfaction in this category compared to other occupations as well as in higher levels of stress, turnover, and absence (Holdsworth & Cartwright, 2003; McFarlane et al., 2015). As highlighted by Holman and Axtell (2016), the employees' experience of call-centre might decline over time, even in the absence of significant

organisational changes (e.g., the usefulness of feedback may decline due to the repetitive nature

of the job; see also the job-related hindrances described above).

Therefore, the four-month follow-up used in the present study may have missed finding

significant effects of the intervention on certain variables because employees could not fully

sustain their job crafting efforts in an environment characterised by many and wearing stressors.

This aspect is particularly relevant considered that, as introduced in section 3.2.2.1.3., it was not

possible to follow up the workshop in job crafting as planned (unlike previous job crafting

interventions; e.g., Gordon et al., 2018; van Wingerden, Bakker et al., 2017b). Moreover, the

organisation and its employees were facing a turbulent time of change, restructuring, and

demands.

In brief, the intervention benefits may have declined over time due to stressors related to

the job and/or a lack of supervisory support towards job crafting (next section). This conclusion

is in line with findings suggesting that the lack of opportunities to express the knowledge, skills

or behaviours gained in training or a decreased motivation to use these due to a lack of rewards

or to constraints can result in a decrease in the use of the training abilities and behaviours learnt

(Ford et al., 2018). Most likely, recurring group sessions were needed to remind the agents of the

job crafting strategies learnt and help them implement these in their job in an ongoing fashion

and according to the work situation, stressors, and obstacles they were experiencing.

5.1.1.2. Alternative Explanations. (2) Lack of management support

Alternatively, management practices may have hindered the agents' ability to implement

beneficial changes to the job characteristics and improve the quality of their jobs and well-being.

As highlighted by McClelland et al. (2014), Deery et al. (2002), and as evident from the top-

down intervention (section 5.1.2.), training supervisors may be a most effective way to improve

the quality of call-centre agents' jobs and ensure employees have the support, trust, and autonomy to engage in proactive behaviours.

McClelland et al. (2014), for instance, argued that without a better understanding of job crafting, supervisors might constrain job crafting efforts in call-centre agents. Team-leaders work in proximity to agents and monitor and evaluate their performance to sustain efficiency (McClelland et al., 2014). During the workshops, participants often referred to their team leader (and the procedures they enforced) as an obstacle (or in some cases a facilitator) to proactive behaviours and independent and autonomous decisions and choices and their health and well-being. For example, in line with previous research (Deery et al., 2002; see also Mellor et al., 2015), some agents reported being terrified by 'red tickets' given to poorly performing employees and were very anxious about performance 'targets'. Participants reported that, in many instances, more time was needed to solve the customers' issues, and they did not consider it fair to have strict targets such as call duration. Several agents vented their frustration (in line with Deery et al., 2002) that a negative performance review followed an excellent customer service job due to the length of the call. Some agents said that they have the autonomy to decide how to address their call to achieve the best possible outcome. Others reported a lack of empathy or flexibility from their team leaders over performance and targets, an aspect which caused them considerable anxiety (in line with Deery et al., 2002). In other words, through qualitative interactions with the participants, it emerged that team-leaders were crucial to determining the perceived quality of the job in employees and the extent to which they perceived it was acceptable to take proactive and independent choices without fear of consequences.

This conclusion is in line with Deery et al. (2002). They suggest that supervisors can be critical to reducing work pressure and tension in call centres by listening and solving employees'

problems, by providing them with more autonomy, and overall, supporting them. In a study run

in a network of Australian call-centres, Deery and colleagues (2002) found that several work-

settings variables such as difficult and abusive customers, scripted customer service interactions,

management of wrap-up time, and management focus on quantity, had a negative effect on

employees' well-being and significantly contributed to emotional exhaustion in agents.

Emotional exhaustion, in turn, led to higher rates of absenteeism. Team-leader support and

average calls length, conversely, had a negative association with emotional exhaustion. Team-

leader support (and promotional opportunities), in turn, were related to lower levels of

absenteeism. Moreover, employees who received higher support from their supervisors perceived

higher promotional opportunities and were less likely to feel they were pressured to minimise

call length or demure about the level of monitoring and the focus on quantity (rather than

quality) of managers.

From Deery and colleagues, it emerges that line managers who focus on the quantity (and

not quality) of the calls and who pressure team-members to minimise wrap-up times can

negatively impact the employees' health and well-being. Consequently, these team-leaders can

determine higher rates of absenteeism in the organisation. On the other hand, team-leaders who

help and support their team members and give them discretion and autonomy over how they

handle their calls can facilitate employees' well-being and enhance their perceived level of

development opportunities. As a result, team-members of supportive supervisors take less

absence and perceive lower levels of monitoring and pressure to reduce calls length. Deery et al.

(2002) conclude that it may be crucial to encourage a more supporting and empowering

management style amongst team-leaders. This conclusion is in line with the management

development intervention (section 5.1.2.) and suggests that participants in the bottom-up

intervention may have experienced a transactional type of management that made it challenging to sustain job crafting over time. An empowering and supportive type of leadership appears critical for call-centre employees.

In agreement with Deery et al. (2002), Mellor et al. (2015) found that performance monitoring hurt call-centre agents' health, particularly when performance monitoring was seen as used excessively and for punitive reasons. The authors argued that managerial support and constructive (and immediate) feedback could be crucial to enhance work experience in call-centre agents.

Holdsworth and Cartwright (2003) found that call centre agents were less satisfied with their jobs, more stressed, and reported poorer physical and mental health than the general working population. They were also less empowered (the latter referred to a multidimensional construct made of meaning, impact, self-determination, and competence). Lower levels of empowerment predicted lower levels of job satisfaction. While meaning and impact influenced the agents' job satisfaction, self-determination (the belief that one has control and autonomy over work and work methods) was the stronger predictor of job satisfaction. According to the authors, management practices in call-centre should focus on enhancing the perception of empowerment in employees to favour positive outcomes such as health and job satisfaction. They call for more complex empowerment interventions to enhance the employees' perceived sense of competence, decision-making, and autonomy to assist self-determination and the perception of a supportive organisational climate. Overall, from several studies in call-centres, it emerges that management practices matter to empower employees, enhance their perceived levels of autonomy and control, and facilitate positive outcomes such as job crafting or well-being. This conclusion most likely applies to other occupations since supportive leadership styles (e.g., empowering leadership) and

job autonomy emerged as positively related to job crafting in different settings (for a review, see

Wang et al., 2020). From this chapter, it emerges that team-leaders' management style may also

have affected the outcomes of the bottom-up intervention.

Overall, work experience in call-centre may worsen over time (Holman & Axtell, 2016)

unless line managers provide a supportive space for employees to craft and keep crafting their

job. Support from this conclusion comes from the results of the top-down intervention. Future

studies could investigate whether and to what extent supervisors' leadership style affects the

outcomes of job re-design and bottom-up interventions.

5.1.1.3. Alternative Explanations. (3) Voluntary participation and transfer of training

Another possible explanation for the lack of full support for H1 may be that participants

did not volunteer to participate in the workshop in job crafting. As indicated earlier, the HR

department made the training compulsory for each team member in the respective departments.

Although the compulsory element of the training reduces participation and self-selection bias and

enhances the external validity of a study, it may also limit the training's effectiveness as

participants might be reluctant or unwilling to participate (Demerouti et al., 2020). In fact, some

participants in the present study explicitly reported that they were not interested in the training

and would not have participated actively during the workshop (several reported having lost faith

in their organisations' initiatives). Others did not participate seriously in the training, while

others showed tardiness as well as absenteeism behaviour. Finally, some actively acted against

the training by arguing with the researcher or trying to distract the other participants.

Recently, Demerouti and colleagues (2020) implemented a job crafting intervention

where participation in the group sessions was not voluntary. Although the study's control group

was small (i.e., $N = 16$), making it difficult to draw robust conclusions, the results share similarities with the present study. Namely, the intervention did not significantly affect the job crafting strategies of seeking resources and optimizing demands (an increase of the latter was only found through univariate t-tests). Therefore, the authors could not explain the positive effects of the intervention on exhaustion and safety behaviour (seeking challenges explained the positive effects of the intervention on change attitude). In agreement with Van den Heuvel et al. (2015), Demerouti et al. (2020) argued that training might be more effective when participants volunteer. The literature provides some support for this conclusion.

For instance, trainees' motivation to learn emerged as an individual factor that determines to what extent what is learned during training is transferred to the job (Blume et al., 2010). Arguably, the less motivated a participant was before attending the workshop, the less likely they were attentive, interested, and benefitting from the training. Before participants attend a training, they have often already formed intentions on whether to apply or not the training they will receive (Ford et al., 2018) and implementation intentions have a major impact on subsequent outcomes such as goal achievement (Ford et al., 2018). Indeed, implementation intentions promote goal striving and sustain goal pursuit in the face of adverse influences (Costantini et al., 2020).

Overall, participants with pre-workshop intentions not to apply the training they have received may have represented a different control group, which made it impossible to disentangle the effects of the training on job crafting between motivated and un-motivated participants. Future studies are encouraged to measure the interest participants have in training to control for this crucial element. Simultaneously, pre-intervention sessions to stimulate implementation intentions may be beneficial (Costantini et al., 2020).

Participants who were unwilling to participate and were openly against new interventions may also have influenced the other participants' job crafting efforts. As underlined by Tims and Parker (2020), co-workers might regulate others' job crafting actions and behaviours through negative or positive responses which, in turn, can impact the willingness to craft and the outcomes of the latter for the job crafter. In particular, participants (especially higher status co-workers) who were not open to change and innovation may have perceived proactive behaviours of lower status team-member as violating shared and established norms and expectations. Consequently, they reacted negatively, discouraging future job crafting in other employees and/or determining adverse affective outcomes in these (cf. Tims & Parker, 2020).

5.1.1.4. Prosocial behaviours and positive outcomes

On the other hand, it is critical to remember that the intervention did positively affect the participants' perceived levels of social resources and job satisfaction. It is conceivable that those participants who participated actively during the workshop and who transferred the training received successfully acted as role models for the others and benefited the colleagues by engaging in prosocial behaviours (see also the end of this section for a further alternative explanation for the positive findings). Namely, several participants set approach-oriented job crafting goals such as organising social events, mentoring new employees, supporting colleagues in difficulty, sending jokes to colleagues, improving the work climate, standing for the team and taking the leader's role, etc. These prosocial job crafting actions have, most likely, benefited the job crafter and his/her co-workers (see below). This conclusion appears to be confirmed by the general enhancement of social resources and job satisfaction specifically.

Considered the difficulties inherent to working in call-centres, agents tend to rely on colleagues and form communities of coping to deal with stressors (Korczynski, 2003). Therefore,

the proactivity of some employees may have had a positive effect on the work climate (better

social resources) and overall determined higher levels of cognitive well-being regardless of

whether job crafting behaviours have increased across the whole experimental group. This is in

line with Tims and Parker's (2020) arguments according to which crafting with prosocial

motives can determine positive outcomes such as well-being for both the crafter (who receives a

supportive response from colleagues to his/her job crafting) and co-workers who benefit from the

prosocial job crafting efforts of the crafter. (The opposite can happen when one crafts moved by

self-interest at the expenses of others, with co-workers reacting negatively and the crafter

experiencing adverse affective outcomes as a result). Although the present study could not

confirm the mechanisms through which the bottom-up intervention led to positive outcomes, it

has triggered specific mechanisms that improved the psychosocial work climate. These

mechanisms may reflect the prosocial attitude shown by many employees in their job crafting

goals; a prosocial attitude that has benefited themselves and others.

　　　　The positive outcomes found indicate that job crafting interventions can elicit positive

effects not exclusively by increasing job crafting behaviours in all participants but also by

improving the psychosocial working environment. Future research may also investigate

qualitatively the mechanisms through which job crafting interventions elicit positive outcomes.

Namely, in-depth interviews and focus groups can help determine what changes the participants

have experienced following the implementation of an intervention. Simultaneously, future

research could test whether approach-oriented job crafting (note, Tims et al., 2015a previously

focused on reducing hindering demands only) has a positive impact on co-workers' well-being

and perceived organisational climate.

As an alternative explanation for the positive findings, it is also possible that participation in the workshop (including the latter's shared activities) represented an opportunity for employees to meet colleagues and make new friends. According to Daniels, Watson, and Gedikli's (2017) systematic review, workshops based on shared activities between workers (especially when facilitated by some external facilitation) can enhance employees' well-being via improved social environments. These interventions are particularly cost-effective and relatively easy to implement compared to more complex job re-design interventions (Daniels, Watson et al., 2017). Future research might compare the impact of a job crafting intervention on workers' well-being (and perceived job characteristics) against the effects of an intervention based on increasing the occurrence of shared activities (while possibly evaluating the interaction between the two) on the same outcomes. These comparisons between interventions may enhance our understanding of the most beneficial and cost-effective programs to improve workers' well-being.

As introduced above, it is important to highlight that the present study could not confirm empirically the mechanisms through which the bottom-up intervention led to positive outcomes. Specifically, the job crafting intervention did not precisely activate the intended mechanisms (i.e., elicit positive outcomes through the hypothesised route via enhanced job crafting). It is not uncommon for intervention studies to fail to precisely distinguish the specific mechanisms that determined (not) beneficial outcomes (Bakker & van Wingerden, 2021; Dubbelt et al., 2019). For example, previous job crafting intervention studies either failed to pay attention to the mechanism through which the intervention impacted workers' outcomes (Dubbelt et al., 2019), did not increase job crafting behaviour (i.e., Kuijpers et al., 2020; Sakuraya et al., 2020; van den Heuvel et al., 2015) or led to positive outcomes through unintended or partially intended

mechanisms (not necessarily via job crafting or only through specific job crafting dimensions but not through the others theorised, e.g., Demerouti et al., 2017, 2020; Dubbelt et al., 2019; Gordon et al., 2018; van den Heuvel et al., 2015; Van Wingerden et al., 2017a).

As introduced earlier, it is frequent for well-being interventions to elicit positive outcomes through unintended mechanisms or through mechanisms not planned as part of the intervention (see Daniels et al., 2021). Some of the social mechanisms discussed in the present section can account for the beneficial effects of the bottom-up intervention, even though these effects did not strictly follow the hypothesised paths (via job crafting). In line with the arguments presented above, Daniels et al. (2021) found that in all the intervention studies where unintended mechanisms determined positive outcomes, intervention effectiveness was attributed to improvements in social aspects of work that were bound to intervention implementation. Their findings support the arguments presented above and suggest that some of the social mechanisms discussed in this section can account for the positive effects of the bottom-up intervention, in line with previous research and possibly informing future studies.

5.1.2. The effects of a Top-down Intervention

The second central line of inquiry pursued in the thesis was to test the effects of a top-down management development intervention on employees' job crafting and well-being. The intervention was based on evidence-based coaching and Kolb's experiential learning cycle and aimed at improving the team-leaders' social skills (and facilitate the goal-oriented use of these) and job design-related knowledge. It was anticipated that the top-down intervention would have had an independent effect on employees' well-being while simultaneously facilitating job crafting in workers. Specifically, it was hypothesised (H4) that employees whose managers participated in the management development training would have reported higher levels of job

crafting, and in turn, of perceived job characteristics, P-J fit, coping efficacy, meaning, job satisfaction and well-being. The results supported this hypothesis and highlight that the management development intervention had a beneficial impact on employees above and beyond the effects of the bottom-up intervention, which positively impacted social resources and job satisfaction only.

As hypothesised, the top-down intervention had a direct positive effect on job crafting. It also had an indirect positive effect via job crafting on structural resources, challenge demands, social resources, P-J fit, coping, meaning, job satisfaction (via structural resources and P-J fit), and well-being (via coping or structural resources). Higher levels of job crafting were also directly positively related to every outcome in the model except for hindrance demands (the structural model's findings concerning job crafting are discussed in section 5.1.4.). Furthermore, the top-down intervention had a direct positive effect on P-J fit and challenge demands (although the effect of the intervention on challenge demands was negative, this finding can be interpreted positively as discussed in section 5.1.4.1.). It also had a positive total or total indirect effect on every outcome under scrutiny except for hindrance demands. Overall, this study's results highlight that the management development training ideated can be a more cost-effective[31] way to facilitate job crafting in employees, improve their perceived quality of the job, P-J fit, coping efficacy, meaning at work, job satisfaction, and well-being, because management development necessarily involves training fewer people than job crafting.

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[31] Since it was not possible to carry out the follow-up sessions or stay in touch with the supervisors through a LinkedIn group, it is conceivable to infer that full implementation of the intervention could lead to even better outcomes.

The findings provide different theoretical contributions and insights. (1) Taken together with the bottom-up intervention results, the findings highlight the critical role played by line managers for the successful implementation of organisational interventions. Simultaneously they offer insights for specific recommendations directed at future job re-design interventions (section 5.1.2.1.). (2) The findings support the scarce amount of intervention studies directed at the managers' social-emotional skills and offer insights about the potentially critical value that management social-skills training play for employees' well-being (section 5.1.2.2.). (3) The results underscore the pivotal role that line managers play to facilitate employees' job crafting and provide the first quasi-experimental evidence supporting this assumption. Simultaneously, this evidence potentially opens new avenues for research (sections 5.1.2.3.; 5.1.2.4.; 5.1.3.). These points are further developed and discussed below.

5.1.2.1. The impact of managers

Taken together with the bottom-up intervention results, the top-down intervention findings provide valuable, quasi-experimental evidence highlighting the crucial role that line managers play for the implementation of job re-design interventions that lead to positive outcomes (Lundmark et al., 2017; Nielsen, 2017). Managers can either make or break interventions (Nielsen, 2013) and have a major influence on individual interventions' outcomes (Christensen et al., 2019; Lundmark et al., 2020). Overall, the findings are in line with previous research and offer further theoretical insights based on the top-down intervention's design.

Previous research has shown that management involvement and commitment are critical to ensure managers facilitate (and do not undermine) the implementation of job re-design interventions and their intended outcomes (Daniels et al., 2017; Lundmark et al., 2017; Nielsen & Randall, 2009). It may also be critical to empower line managers in the job re-design process

and ensure that they feel 'in charge' of the improving jobs, as the intervention leaders (and thus

be committed to the intervention; see below). Previous research has shown that regardless of the

specific content and aims of the intervention, through their attitudes and behaviours, line

managers have a direct impact on interventions' intended, distal outcomes (e.g., employees'

well-being, self-efficacy) as well as on the workers' attitudes (e.g., readiness to change) either

positively or negatively (Lundmark, 2018; Lundmark et al., 2017; Nielsen & Randall, 2009;

Randall et al. 2009). Accordingly, it is critical to account for this crucial variable when designing

and implementing job re-design interventions (e.g., include elements aimed at gaining the

managers' full support; minimise elements that might undermine their motivation) to maximise

the latter's effect.

In agreement with the self-determination theory, the direct involvement of line managers

as well as the stimulation of their sense of "ownership" of the intervention could stimulate

intrinsic motivation and internalization (i.e., a personal interest in the intervention itself) by

fuelling feelings of autonomy, control, relatedness, and competence over the change process (see

Gagné & Deci, 2005). Intrinsic motivation can fuel commitment to the goal and commitment to

activities associated with the goal (Sansone et al., 2000). Unsurprisingly, previous research has

provided support for the effectiveness of supervisor training in reaching goals such as improving

workers' health or enhancing supportive behaviours (see Ellis et al., 2017; Hammer et al., 2011;

Odle-Dusseau et al., 2016; Perry et al., 2020). Thus, theoretically, the more intrinsically

motivated a line manager, the higher his/her commitment towards the intervention, the more

favourable his actions and attitudes towards the intervention, and hence, according to Lundmark

and colleagues' (2017), Randall et al.'s (2009), and Nielsen and Randall's (2009) findings, the

more favourable the outcomes. Finally, providing line managers with the personal resources

needed to engage and inspire workers in the change process can be essential to facilitate the job re-design process (Lundmark et al., 2020). Biggs et al. (2014) and Tafvelin et al. (2018) quasi-experimental studies both show the value of enhancing the personal resources of line managers (e.g., coaching and relational skills) through tailored training to facilitate beneficial job re-design and positive outcomes in employees.

The elements discussed above may inform broader job re-design interventions (e.g., system-wide interventions) that aim to gain the managers' full support and engagement towards the intervention. Under this light, the present study provides promising evidence that (1) coaching principles aimed at stimulating accountability, intrinsic motivation, and goal achievement (refer to section 3.2.2.2.) may assist management commitment to job re-design interventions and can successfully be implemented in an intervention directed at workers' job design and well-being. (2) That social-skills training (and job design-related knowledge) can represent valuable resources to assist line managers in engaging better with and inspiring workers in the context of job re-design.

Concerning this last point, the findings provide evidence in support of the beneficial impact of leadership training in social and emotional competencies on employees' attitudes (job crafting), perceptions (job characteristics, P-J fit), abilities (coping efficacy), and well-being (i.e., job satisfaction and affective well-being).

5.1.2.2. Social skills and leadership development

A growing amount of evidence indicates that social and emotional competencies are critical for successful and effective leadership and management (McDermott et al., 2011; Riggio, 2020). Good social and emotional competencies in leaders are commonly recognised as necessary to elicit positive outcomes in followers and organisations (McDermott et al., 2011;

Riggio & Lee, 2007) and can be critical to assist employees in coping with adverse circumstances (Cuadra-Peralta et al., 2017). Even leaders themselves (see McDermott et al., 2011) emphasise the importance of social skills such as emotional control (i.e., masking and managing emotions) or motivational expressiveness (i.e., inspiring and motivating employees; refer to Table 8 in section 3.2.2.2.3) in the workplace. Not surprisingly, leadership programs often focus on enhancing interpersonal and emotional skills (Riggio & Lee, 2007) and organisations invest a substantial amount of resources in these programs (Riggio, 2020). Nevertheless, a minimal amount of research has rigorously tested the effectiveness of interventions directed at managers' social and emotional competencies (Riggio & Lee, 2007), and it is unclear whether and to what extent these programs elicit positive organisational outcomes (Riggio & Lee, 2007).

Under this light, the present study provides a significant contribution by showing that social skills training is indeed a valuable component in the context of a leadership development intervention to elicit long-lasting positive outcomes in employees. This conclusion is strengthened by the methodological advancements (i.e., a larger sample size, longer follow-up, a robust measurement model) of the present research compared to previous intervention studies that targeted the manager's social skills. Indeed, although recent quasi-experimental research provides encouraging support for the value of social skills development in line managers, it has limitations that make it hard to generalise the findings.

For instance, Cuadra-Peralta et al. (2017) found that an intervention program based on social skills and leadership delivered to line managers of an industrial company was effective to enhance the subordinate's perceived organisational climate (one month after the intervention) and the organisation's objective performance (four months after the intervention). According to

the authors, the research sheds light on the critical role of line managers and their social and

leadership skills for organisational effectiveness and the value of tailored leadership

development programs towards this end. This said, the study has significant limitations. The lack

of a control group, for instance, makes it impossible to rule out most threats to internal validity

and to determine whether the changes detected were due to the intervention or to unrelated

factors (see Cook et al., 1990 and Table 3). Moreover, the scale used to measure organisational

climate was not previously validated, nor CFAs were run to test the measurement model. Finally,

the limited sample size ($N = 34$) plus the availability of univariate tests only make it hard to

generalise the findings.

Nevertheless, in line with Cuadra-Peralta et al. (2017) and the present study, Veloso-

Besio and colleagues (2019) found that a leadership development intervention based on social

skills and positive psychology delivered to line managers of a public organisation undergoing

organisational change had a beneficial impact on employees. Specifically, using a more robust

design than Cuadra-Peralta and colleagues, and including a control group, Veloso-Besio et al.

(2019) found that employees under the supervision of line managers in the experimental group

reported an increase in work motivation and organisational climate compared to employees in

the control group. Moreover, the control group experienced a decrease in the dependent variables

from T1 to T2. This finding suggests that supervisors' social skills training can also be effective

to counteract the negative effects of organisational change (Veloso-Besio et al., 2019). Overall,

according to the authors, line managers' behavioural changes (following training in social skills)

can be critical to enhance motivation and perceived work climate in employees since supervisors

are in frequent contact with subordinates. In this sense, social skills training can represent a

valuable resource for supervisors, translating into heightened emotional support for subordinates

and leading to positive outcomes such as commitment to work and a better disposition (Veloso-Besio et al., 2019). However, Veloso-Besio et al. assessed changes only two weeks after the last training session. The present study supports and adds to Veloso-Besio et al.'s (2019) findings by showing that the beneficial effect of management development in social skills can be found several months after the intervention.

Although not explicitly focused on social skills training, Perry and colleagues (2020) implemented an intervention to enhance supervisors' family and personal support behaviours, safety support behaviours, and role-clarity support behaviours. Through computer-based training, U.S. Forest Service workers' supervisors were trained on emotional support strategies such as expressing empathy and helping employees cope with work, family and personal challenges. Perry and colleagues (2020) found that workers whose supervisors were in the experimental group reported lower psychological distress 3-4 months following the baseline survey. The intervention was not related to a significant increase in job satisfaction, organisational commitment, and work to family conflict. The limited effectiveness of the intervention may be due to the self-administered nature of the training (see Lacerenza et al.'s, 2017 meta-analysis on the elements of effective leadership development). Nevertheless, the results confirm that a leadership development program involving training in social and emotional competencies positively affects employees' health. This said, implementing an intervention might be perceived as an additional demand (or a challenge) by supervisors according to Perry and colleagues (2020). As introduced earlier, it is important to provide supervisors with more resources such as increased autonomy within the intervention process (and stimulate intrinsic motivation).

In conclusion, despite methodological limitations, recent research (along with previous cross-sectional and meta-analytic evidence, e.g. Miao et al., 2016) indicates that line managers'

social and emotional competencies are of paramount importance for employees' well-being. By using a more robust design, an intervention explicitly targeted to social skills, and a larger sample, the present study contributes to the literature by showing that social skills training in line managers can be effective to enhance different outcomes in subordinates compared to those investigated in previous research including cognitive (perceived job characteristics, job crafting, P-J fit, meaning at work, job satisfaction), behavioural (job crafting), attitudinal (coping efficacy), and affective (well-being) elements. As highlighted by Miao et al. (2016), emotionally competent leaders can take the role of "mood managers" to influence the emotions of employees and favour the experience of more positive affect and less negative affect via effective interpersonal relation (or emotional contagion) that lead to higher job satisfaction in employees (p. 21).

This said, none of the studies cited above indicated whether supervisors' social and emotional competencies improved because of the training and whether better social skills in line managers explained the positive outcomes in subordinates. It was one of the present research's aims to investigate this aspect; however, the limited number of responses received from supervisors did not make it possible. Future research could investigate whether and to what extent supervisors' social skills improve due to tailored training and whether the improved social skills explain the positive outcomes of the intervention on employees. Past research (i.e., Hunt & Baruch, 2003) has shown that (some) social skills in leaders can be improved following tailored training but did not test whether the improved skills determine positive outcomes in subordinates. Future research could specifically focus on the impact of line managers' social and emotional competencies on employees' job crafting. Considering the present study's findings, this is a promising avenue of research.

5.1.2.3. Management development and job crafting

As hypothesised, the top-down intervention had a direct positive effect on employees' job crafting. Via job crafting, the top-down intervention also had a beneficial impact on the employees' perceived job characteristics (except for hindrance demands), P-J fit, coping efficacy, meaning at work, job satisfaction, and well-being. Overall, as predicted, job crafting emerged as a significant mediator in the positive relationship between the intervention and these outcomes (and simultaneously had a significant direct or indirect effect on each of them; section 5.1.4.). The findings, on the one hand, provide support to qualitative (e.g., Berg et al., 2013) and cross-sectional (e.g., Kim & Beehr, 2019; Slemp et al., 2015) research highlighting a link between the line managers' attitudes, behaviours, and leadership style with the subordinates' levels of job crafting. From previous cross-sectional research, indeed, emerged that leadership styles such as empowering leadership (Kim & Beehr, 2019; Thun & Bakker, 2018), transformational leadership (Wang et al., 2017), or servant leadership (Bavik et al., 2017; Harju et al., 2018) are positively related to job crafting. Similarly, specific attitudes in managers such as autonomy support (Slemp et al., 2015) or need for structure (Solberg & Wong, 2016) are significantly related to employees' job crafting.

According to the results, the employees' levels of job crafting (and, in turn, their well-being) can be increased by providing line managers with training designed to boost their social skills and job design-related knowledge and assist them in purposefully using these skills to empower team-members and to enhance the quality of their jobs. Conceivably, the higher the social skills of line managers (and the goal-oriented use of these), the higher the team-members' levels of job crafting (i.e., as a result of the managers' enhanced ability to understand and control their own and the others' emotions and to engage in behaviours that are better aligned with the

employees' needs) and the more beneficial the outcomes of job crafting as employees feel empowered and supported through their job crafting efforts.

On the other hand, the top-down intervention results provide the first quasi-experimental evidence in support of research (e.g., Thun & Bakker, 2018; Wang et al., 2020; Zhang & Parker, 2019) theorising that leadership is an essential antecedent of job crafting. Simultaneously, the findings may have broader theoretical implications. Namely, by virtue of the experimental manipulation, and by simultaneously assessing the impact of a top-down and a bottom-up intervention, the present study shows that through their knowledge, skills, attitudes, actions, and behaviours, managers may play an intrinsic role in the whole job crafting process. This role could not be limited to being an external boundary condition that facilitates or mitigates job crafting, as most research has implicitly assumed (e.g., Rudolph et al., 2017; Zhang & Parker, 2019). Line managers may be an integral element of the successful job re-design process and influence whether (and to what extent) employees envision job crafting opportunities, initiate job crafting, sustain job crafting, achieve positive outcomes via job crafting, and continue to craft the job (see below and following sections).

Unexpectedly, training employees themselves (bottom-up intervention) did not positively impact the workers' levels of job crafting. Conversely, training their managers (top-down intervention) led employees to increase (or possibly start) their job crafting activity. Moreover, the top-down intervention had an indirect beneficial effect via job crafting on almost every outcome. Overall, training others (i.e., managers) had a direct beneficial effect on employees' job crafting (and, via the latter, on the other outcomes) whereas training employees themselves did not. These findings challenge job crafting theory (i.e., job crafting refers to a self-initiated and self-sustained behaviour; Bruning & Campion, 2018) and make it reasonable to infer that line

managers not only can facilitate job crafting in employees as emerged from previous cross-sectional research. Managers may also have a direct influence on whether employees' initiate and sustain beneficial job crafting.

A growing amount of research supports this conclusion. For instance, Wang et al.'s (2020) meta-analysis suggest that leadership is a critical antecedent of job crafting. Job crafting (in its promotion-focused dimension), in turn, mediated the positive effect of leadership on positive outcomes such as well-being, a finding that highlights that positive leadership is a driving factor for beneficial (and not detrimental) job crafting. Wang et al. (2020) acknowledged that only experimental studies could provide information on the causal effect of leadership on workers' job crafting behaviour.

The results of Study 1 provide such information by showing that leadership training, indeed, have a causal effect on employees' job crafting (above and beyond training employees themselves in job crafting). These findings could redefine our knowledge of job crafting as they imply that the employees' drive to, and the act of, purposefully changing the boundaries of their job to enhance the quality of the latter (i.e., job crafting) may not be entirely self-initiated, self-starting and self-sustained as referred in the literature and as per definition of job crafting (Bruning & Campion, 2018; Tims & Knight, 2019).

Job crafting – as a beneficial and sustainable job re-design process - could be better viewed as a mutual and circular process involving both, team-leader and team-member (and to a minor extent co-workers) with neither of them being necessarily the initiating actor in the re-design process (see next sections and Clegg & Spencer, 2007) as assumed by all previous research that has treated individual job crafting and social factors separately (i.e., one predicting, moderating, or mediating the other or vice-versa) taking an individualistic approach focused on

the job holder. Based on the findings, and recent research (Wang et al., 2020), it might be the

case that it is impossible to disentangle job crafting, or at least, beneficial and sustainable job

crating, from the social context. Specifically, it is argued that job crafting could be a facet of a

broader - dynamic and circular as opposed to unidirectional (Clegg & Spencer, 2007) - job re-

design process (introduced in section 5.1.3.) and is embedded in (and intertwined with) the

social, dyadic exchange of different actors. Namely, team-leader and team-member.

The question of whether job crafting is embedded in the dyadic exchange of team-leader

and team-member (5.1.2.4.) and a new construct is needed in the job design literature (5.1.3.)

was not directly addressed in the two studies. However, given the results, and recent research

(e.g., Wang et al., 2020), it may be worth discussing. The following sections also aim to provide

a more critical explanation of the findings, including the lack of support for the thesis's central

hypothesis predicting an interaction effect between the top-down and bottom-up interventions.

5.1.2.4. New theoretical perspectives: A social exchange view of job re-design

Social exchange theory (SET; Blau 1964; 2017) can provide a solid framework to support

and expand the arguments introduced in the previous section, explain the findings, and elaborate

a new construct (section 5.1.3.). SET is one of the most authoritative conceptual paradigms in the

organisational behaviour literature (Cropanzano & Mitchell, 2005) and has provided researchers

with a robust framework for interpreting behaviour at work (Mitchell et al., 2012). SET theory

regards social life as involving a set of mutual, open, interdependent, and sequential transactions

between two or more parties (Cropanzano et al., 2017). These parties exchange (positively-

valued versus negatively-valued) resources based on the principle of reciprocity whereby one

part repays the beneficial treatment received (or expect compensation for the costs incurred) with

elements such as trust between the parties influencing the quality of the transactions

(Cropanzano et al., 2017). In social exchanges, people expect a reward (e.g., to be paid a lunch) when incurring into a cost (e.g., giving a friend a long ride on a Sunday morning) that is of equal or greater value than the cost (Redmond, 2015). Failure to repay a favour or debt may create resentment and negatively affect relationships or even end it (Redmond, 2015).

According to the SET (Blau 1964; 2017), a social exchange process initiates when an organisational actor (e.g., a supervisor) treats or relates to a target individual (i.e., team-member) in a positive or negative fashion (Cropanzano et al., 2017). Positive initiating behaviours and actions can include providing justice or support (Cropanzano et al., 2017). In response to positive behaviours, the targeted individual is likely to reciprocate (or feel obliged to repay for) the positive treatment received (Bernerth et al. 2007) and to act in a way that meets the partner's expectations (Lee, 2020). Consequently, a series of positive reciprocal exchange can result in high-quality social exchange relationships (Cropanzano et al., 2017). Conversely, negative initiating actions (e.g., abusive supervision, bullying) can have a detrimental effect on the quality of the social exchange between team-leader and team member (Bernerth et al., 2007; Cropanzano et al., 2017). Positive social exchange perceptions are associated with psychosocial outcomes such as organisational citizenship behaviours (OCB) and performance (Andersen et al., 2020).

Arguably – and in explanation of the conflicting results of the bottom-up and top-down interventions on employees' job crafting - the actions and goals pursued by the leaders resulting from the management development training may have initiated a circular and self-reinforcing positive social exchange process. In this process, the team-members perceived the autonomy and support to engage in proactive behaviours. These behaviours were aligned with the supervisors' expectations (i.e., within their zone of acceptance) since employees felt the need to reciprocate

the favourable treatment received. The proactive actions benefited themselves (i.e., use of resources, increased P-J fit, meaning, coping and well-being) and their leaders (i.e., higher performance, enhanced morale, improved dyadic relationship). In turn, the latter trusted their team-members, empowered them, and gave them space to craft their job without facing negative consequences. Conversely, in the bottom-up intervention, the proactive actions initiated by employees as a result of the training may have been (1) misaligned with the line managers' expectations; (2) might have verified in a context of an unfavourable dyadic exchange; and (3) might have worsened the dyadic exchange (due to their misalignment), with the result, in all three cases, that job crafting could not be sustained (further information below and in the next section).

In other words, like other psychosocial constructs such as OCB, perceived organisational support, the psychological contract and leader-member exchange (LMX) can be viewed as indicators of the nature and quality of a specific social exchange relationship (Andersen et al., 2020; Gottfredson et al., 2020), job crafting may also be an indicator of, (span from, and thrive in) a quality dyadic exchange between team-leader and team-member.

Conversely, a low-quality exchange between team-leader and team-member does not promote job crafting as team-leader and team-member do not share the need to reciprocate positive behaviours or actions beneficial (and not detrimental) to the other. In these instances, negative initiating behaviours from a team-leader (i.e., excessive monitoring, unreasonable demands) can result in proactive behaviours in the team-member that are driven by self-interests (e.g., reduce workload; chit-chat with colleagues) [or vice-versa]. These behaviours result in an adverse reaction by the supervisor, who further increases negative behaviours (e.g., a further increase of monitoring) with the outcome that proactivity must end. Job crafting cannot be

implemented any longer as the supervisor does not provide space for job crafting or react negatively to the latter.

Previous evidence supports this reasoning. Fong et al.'s (2020) findings, for instance, indicate that (1) line managers are aware of avoidance job crafting in employees, (2) perceive this as a destructive work behaviour and (3) react negatively to avoidance job crafting by reducing supervisory support. Based on their findings, we do not know whether avoidance job crafting precedes or follows an unfavourable social exchange with a team-leader. For instance, it is conceivable that avoidance job crafting stems from unreasonable demands. However, we know that avoidance crafting triggers a negative spiral whereby the social exchange worsens and results in lower supervisory support for employees. According to the authors, following the supervisor's adverse reaction, employees will not experience job crafting's intended benefits. Instead, the adverse supervisory reaction decreases job crafting effectiveness and further hinders the employee's well-being and success at work.

In further support of the importance of a positive leader-member dyadic exchange for job crafting, several studies have found a positive association between LMX and employees' job crafting (Berdicchia & Masino, 2017; Lee, 2020; Qi et al., 2019). Moreover, some (i.e., Li, 2015; Radstaak & Hennes, 2017) showed that job crafting mediates the positive effect of LMX on work outcomes (i.e., affective commitment, work engagement). Similarly, several studies have shown that positive initiating behaviours (i.e., empowering or constructive leadership) positively impact job crafting (Wang et al., 2020). Conversely, as seen earlier, a negative team-leader team-member social exchange does not favour beneficial job crafting, and a negative leadership style (e.g., abusive supervision, authoritarianism, manager's need for structure) is negatively associated with job crafting (Luu, 2018, 2019; Solberg & Wong, 2016).

Overall, theoretical reasons and recent research suggest that job crafting should not be viewed as a construct involving one, single actor as previous research has (tacitly or overtly) assumed based on the definition of job crafting (see next section). Like other psychosocial constructs (e.g., teamwork), successful job crafting implementation might stand on shared mental models of team-leaders and team-members and on a quality dyadic exchange.

Not surprisingly, as seen above, growing evidence (including the present study) is showing that individual job crafting is bound to specific conditions (i.e., managers behaviours, skills, knowledge, leadership style) that determine whether and to what extent job crafting can be implemented, sustained and is successful. It follows that the classical view of job crafting as a volitional act involving an individual actor attempting to enhance the quality of his job for himself (Bruning & Campion, 2018) may only capture a facet of a broader phenomenon of job re-design. The latter is not purely bottom-up nor exclusively top-down, but it could better be defined as a circular bottom-up and middle-down process involving the focal employee and his/her line manager. In the following section, a new construct is introduced, in a preliminary form, with the aim to (1) provide an alternative explanation of the results of the present study, particularly concerning the principal moderation hypothesis, and (2) to move forward the concept of job crafting based on the findings and recent research.

5.1.3. New theoretical perspectives: an introduction to Leader-Member Role Adjustment (LMRA). A new construct to explain the findings

A critical aim of the thesis was to test whether, as hypothesised, the top-down intervention moderated the positive effect of the bottom-up intervention on job crafting and the other outcomes. Unexpectedly, the two interventions did not synergistically interact to boost job crafting in employees. This was an interesting finding considered that a main direct effect of the

top-down intervention (but not the bottom-up one) on job crafting was, instead, found. These

conflicting results are difficult to explain following job crafting theory and the job-redesign

literature. In line with previous research (e.g., Daniels et al., 2017; Gordon et al., 2018; Kim &

Beehr, 2019; Tafvelin et al., 2018; Thun & Bakker, 2018; Tims et al. 2013), training

simultaneously employees (in job crafting – job re-design) and team-leaders (to favour

employees' job crafting – employment practices) should have had a more substantial impact on

employees' job crafting than the top-down and bottom-up interventions solely as, among other

factors, bottom-up job re-design was expected to be better aligned with those employment

practices (i.e., management style) that have a critical bearing on workers' behaviours and goals.

In the previous section, I introduced how the conflicting findings of the bottom-up and

top-down interventions on employees' job crafting could be better explained under a SET

perspective and a circular bottom-up and middle-down view of job re-design. The arguments can

be expanded further to explain why the two interventions did not interact to boost job crafting.

However, because a multi-actor view of job crafting contradicts the very definition of job

crafting (see immediately below), the need is seen to differentiate two related but different

constructs/processes.

Individual job crafting reflects the (desired or actual) "changes to a job that workers make

with the intention of improving the job for themselves" (Bruning & Campion, 2018, p. 500).

This definition reflects the classical construct of job crafting based on the various

conceptualisations that emerged in the literature that Bruning and Campion (2018) integrated

into a series of defining characteristics. According to them, job crafting reflects (1) self-initiated

proactive activities intended to benefit oneself; (2) conscious, intentional and volitional acts

made to one's work; (3) a noticeable change in the job before and after crafting that results in a

meaningful change in the task, relational or cognitive boundaries of the job; (4) permanent or semi-permanent rather than temporary changes in the job; (5) changes in the job role (and not in leisure time); and (6) changes in a job with clear descriptions and tasks.

According to the above, job crafting is an individualistic and unidirectional process involving a main actor (the employee) who volitionally and consciously takes charge to enhance the quality of his/her job to benefit himself (i.e., achieve positive outcomes). Job crafting, as defined, does not include the possibility that others (i.e., supervisors) can initiate the process of proactive job re-design in employees or are mutually, intrinsically, involved in the latter. According to evidence, line managers can facilitate or constrain job crafting and influence its outcomes (Fong et al., 2020; Wang et al., 2020). However, line managers as boundary conditions can only be viewed (and indeed are investigated) as external to the job re-design process (i.e., the focus is on the focal employee) according to the definition above.

The other process, introduced here with the definition of dyadic Leader-Member Role Adjustment (LMRA[32]; Figures 15 and 16), reflects the mutual relationship of trust and positive social exchange between team-leader and team-member whereby the team-member is empowered to adjust his/her role with the support (tacit or overt) of the supervisor for the achievement of positive outcomes that benefit both. LMRA is a different construct compared to job crafting - although it includes a facet named team-member role adjustment which refers to the worker's enactment (note, not initiation) of changes to the job's boundaries - for the following reasons:

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[32] Note, LMRA is different from other concepts such as idiosyncratic deals or task i-deals (Hornung et al., 2010) where formal approval or negotiation is required from the employer to authorise changes to the employee's job (Hornung et al., 2010; Zhang & Parker, 2019).

(1) In the LMRA process, the supervisor is not an external element of the job re-design process but an active ingredient in the latter (see below). Unlike job crafting, LMRA is not individualistically focused on the focal employee as the principal actor of the (unidirectional) job re-design process.

(2) The LMRA process is not necessarily initiated by the worker. The manager can initiate it. For instance, during a performance review, a line manager tacitly or overtly advice a gym instructor to develop new initiatives based on her best interests or skills (e.g., dietary workshops, yoga classes), to schedule her appointments to ensure she has enough time to take breaks in between, or to view her job under a new light (i.e., as a coach who can change people lives). Consequently, the focal employee will implement the role adjustment process (under the supervisor's benevolence) and improve several psychosocial outcomes as a result (in line with the present study's findings). However, the employee has not initiated the process.

(3) (Following the above) In the LMRA process, the worker's proactive role adjustment does not necessarily stem from conscious or volitional choices (as job crafting). It can be bound to and stem from team-leader's/team-member's abilities and skills (e.g., emotional competencies, social skills, feedback, advice). Most participants in the top-down intervention, for example, were not trained in job crafting but increased their proactive activity because of training delivered to their supervisors.

(4) Beneficial and sustainable team-member proactive role adjustment verify only within the zone of acceptance of line managers. Alternatively, the LMRA chain breaks, and employees' proactivity cannot continue or becomes detrimental (Figure 15). This includes changes to task, relational, and cognitive boundaries of the jobs. For instance, a hospital cleaner could increase the amount of interactions with patients and their family and, as a result, see her job as a healer

or caregiver as suggested by Berg et al. (2013). However, suppose the line manager summons

her to focus on cleaning and stop chit-chatting with patients. In that case, the cleaner is forced to

stop her proactive crafting (including its cognitive element) or potentially face adverse

consequences. Similarly, while some participants in Study 1 reported that their line managers

gave them trust and autonomy to decide on their own about the needed time to handle each call,

others reported intrusive monitoring from supervisors and harsh feedback from these if handling

times were long. Hence, agents could safely craft specific aspects of their jobs (i.e., spend more

time on calls as needed without facing negative consequences) only if line managers accepted

this.

(5) In the LMRA process, the changes enacted by the employee or the line manager to the

boundaries of the job are not necessarily permanent or semi-permanent but can reflect temporary

adjustments in the worker's role depending on the quality of the dyadic exchange with their

manager and the working context.

(6) The process of LMRA is cyclical and continuous unless one of the two actors break

the chain by engaging in behaviours that undermine the positive social exchange between team-

leader and team-member. Job crafting conversely cannot be viewed as a continuous process since

(1) it is unidirectional and (2) its success or failure depends, to some extent, on chance (i.e.,

according to previous evidence, depending on whether the employee finds favourable or adverse

boundary conditions).

The concept of LMRA is more appropriate, compared to job crafting, to explain the study

results regarding the conflicting findings between the top-down and bottom-up interventions on

job crafting and the lack of an interaction between the two interventions on employees' job

crafting. As introduced in the previous section, following the top-down intervention, managers

may have initiated a positive social exchange that favoured beneficial and sustainable team-member role adjustment - i.e., employees reciprocated the positive initiating behaviours of line managers by engaging in proactive behaviours aligned with the supervisor's expectations - which in turn, further reinforced the positive social exchange and the possibilities for further proactive role-adjustment (Figure 15). The line managers were in charge of the change process (i.e., to empower employees in line with the intervention's objectives), and most employees naturally (without attending any training and, thus, arguably not following a volitional or conscious choice) increased their proactive activity. Since supervisors engaged in positive initiating behaviours, the naturally occurring role-adjustment of employees flourished in a context whereby employees felt the need (or feel obliged) to act in a way that met the supervisor's expectations (Lee, 2020) and to reciprocate the favourable treatment received (Bernerth et al. 2007). Therefore, employees in the top-down intervention engaged in proactive role-adjustment that was naturally aligned with the supervisor's acceptance zone and could, therefore, be sustained and lead to reciprocal beneficial outcomes.

Figure 15

Introduction to the concept of leader-member dyadic role adjustment (LMRA) with reference to the results of the Top-down intervention
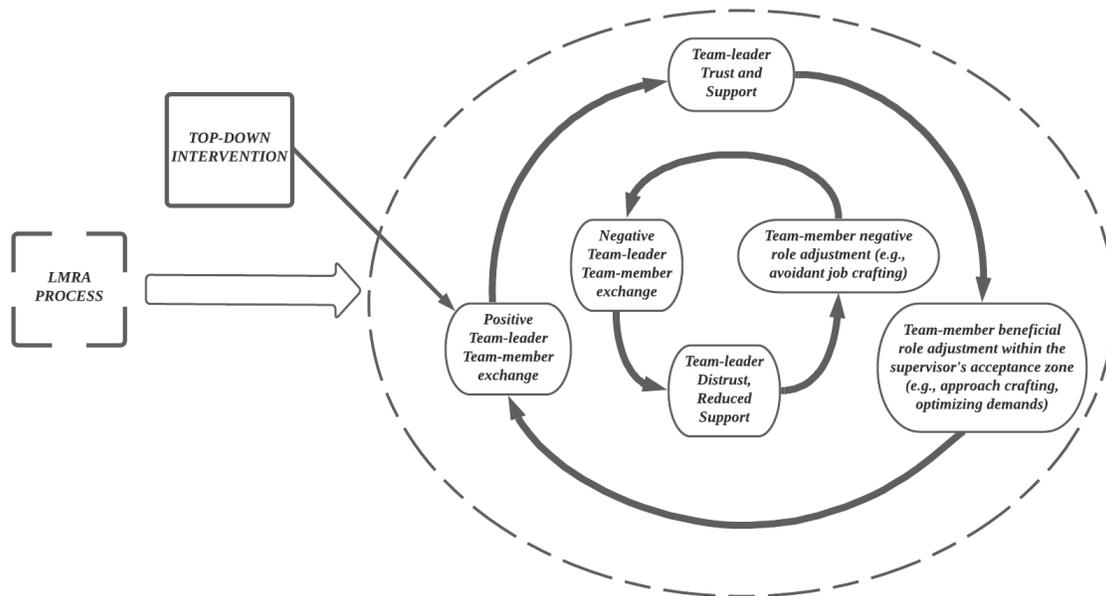
Conversely, in the integrated intervention (and the bottom-up intervention), employees have learned about job crafting and job crafting strategies. Accordingly, while supervisors enacted (or were about to enact) positive initiating behaviours, employees were simultaneously pursuing self-serving job crafting goals (i.e., those set during the workshop) that may have been or not in line with the supervisors' expectations and acceptance zone. For instance, an agent has increased the number of interactions with colleagues and started to return late from his break consequently. Another has set the new challenge of mentoring new employees and threatened, in this way, the manager's perceived status. In these instances, the employee's proactivity undermined the positive social exchange with the line manager since the job crafting goals/actions were not aligned with the supervisor's expectations nor reciprocated the supervisor's positive initiating behaviours. As a result, the manager may have reacted negatively to the employee's proactive role-adjustment and decreased the supervisory support provided to

the latter (Fong et al., 2020), with the direct or indirect consequence that employees could not

sustain a beneficial role adjustment activity.

Overall, in an intervention that integrates top-down and bottom-up elements (or with a

bottom-up element solely), the goals and actions pursued by the employees may or may not be

aligned with those of the supervisors and thus may sustain or break the LMRA chain of

beneficial job re-design (Figure 16). Thus, on average, the intervention may not affect the

proactivity levels of employees.

Figure 16

The concept of LMRA explains the lack of an Interaction effect
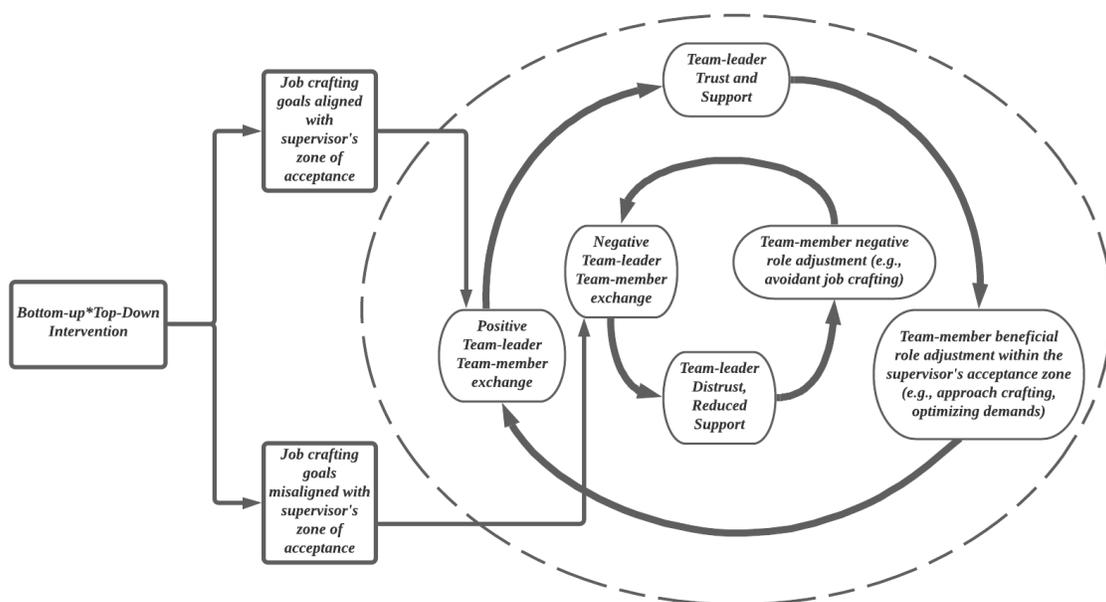
In conclusion, successful job re-design is seen as a mutual, reciprocal and circular

process involving both the employee and the line manager. The success of an intervention

directed at the workers' job design is seen as dependant on whether the team-leader and team-

member job re-design goals and actions are aligned and enacted in a positive dyadic social

exchange (i.e., top-down intervention). Considered the unequal distribution of power in the team-

leader team-member relationship, it is argued (in contrast to job crafting theory) that line managers may have a more substantial influence on the job re-design process (also refer to section 5.1.2.1). It is a responsibility of the team-member to pursue goals-actions that do not undermine the LMRA process. An intervention where the team members are trained to independently modify their jobs and attitudes at work (i.e., bottom-up/integrated intervention) may involuntarily lead employees in pursuing actions that break the LMRA process.

It is acknowledged that further research is needed to expand (and test) the concept of LMRA[33]. However, the latter explains the results well, and accounts for the growing amount of research suggesting that job crafting might not be entirely self-initiated and self-sustained and certainly depends on specific boundary conditions to be successful (cf. also Nayani, 2017). It is pivotal to underline that the proposed LMRA concept aims to provide a conceptual and theoretical explanation of some of the results. The arguments discussed align with recent findings and aim to propose new and realistic avenues of research while providing a theoretical contribution to the field. Nonetheless, because the concept of LMRA goes beyond the data presented in the thesis, it is necessarily speculative. This said, it was deemed worthwhile to introduce this concept in explanation of the findings, even though this has required a slight departure from the focus of the research on job crafting itself. In the following section, it follows a discussion on another line of enquiry of the thesis. Namely, to test a model of the mechanisms through which job crafting elicit positive outcomes on employees.

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[33] Co-workers may also play a role in the job re-design process, although leadership have a more substantial influence (i.e., Wang et al., 2020).

5.1.4. Testing a model of job crafting

A critical aim of the thesis was to test a model (section 2.2.) of the dynamics through which job crafting (and the interventions via the latter), operationalised according to a new definition, elicit positive outcomes. Based on theoretical arguments and previous research it was predicted that job crafting would have had a beneficial effect on outcomes such as well-being and job satisfaction by enhancing the perceived job characteristics, P-J fit, coping efficacy, and meaning at work. Investigating the impact of these variables as outcomes and mediators of job crafting was seen as critical. To the best of my knowledge, no previous research has tested a comprehensive model of outcomes and mediators of job crafting in relation to well-being. More research was also needed to investigate the impact and role of variables such as P-J fit, meaning at work, and coping efficacy in the context of job crafting and job re-design interventions.

Overall, SEM results provided support for the hypothesised model. It was observed that a partial mediation model fitted the data better compared to a full mediation model and that job crafting had a positive direct or indirect effect on each variable in the model except for hindrance demands. The results confirmed all the predicted direct effects at each stage of the model (except for the hypothesised direct effects of job crafting on hindrance demands and meaning on well-being) and almost all the predicted indirect effects. More specifically, the results largely supported the hypotheses and highlight that many of the mechanisms thought to underpin job crafting's beneficial effects are supported in the present research.

5.1.4.1. Testing a model of job crafting: direct effects

In terms of direct effects, as predicted by H2, higher levels of job crafting activity positively related to P-J fit, coping efficacy, and meaning at work. As predicted by the general model, job crafting also positively related to social and structural resources and challenge

demands (but not to hindrance demands). These findings indicate that, as often theorised (e.g.,

Bailey et al., 2019; Berg et al., 2013; Lichtenthaler & Fischbach, 2017; Rudolph et al., 2017), job

crafting does predict these outcomes. Therefore, interventions that increase job crafting

behaviours (i.e., the top-down intervention) can have a beneficial impact on job design factors

(job characteristics) and individual factors (P-J fit, coping, meaning).

Surprisingly, little research has tested the direct impact of job crafting on the job

characteristics, P-J fit, coping efficacy, and meaning at work (i.e., Kooij et al., 2016; Tims et al.,

2016) even though they are inextricably bound to the concept of job crafting (see sections 2.2.2.,

2.2.2.1. and Berg et al., 2013; Tims et al., 2012; Wrzesniewski et al., 2013; Wrzesniewski &

Dutton, 2001). The findings provide support to the scarce amount of quantitative evidence

indicating that job crafting (or specific job crafting behaviours) can lead to improved job

characteristics (Tims et al., 2013), P-J fit (Chen et al., 2014; Lu et al., 2014; Tims et al., 2016) or

sense of meaning at work (Geldenhuys et al., 2020; Tims et al., 2016). However, compared to

these studies, there are some conflicting findings.

For instance, in Tims et al. (2016), job crafting predicted meaning only via P-J fit (via

demands-ability fit but not needs-supplies fit). They did not find a direct link between job

crafting and meaningfulness; a link which was, conversely, found in the present study. A

possible explanation for this conflicting finding can be found in the different operationalisation

of job crafting in the two studies. Namely, Tims et al.'s conceptualisation (2016), based on Tims

et al. (2012), did not include cognitive crafting. In the present study, cognitive crafting was a

critical dimension of job crafting, which loaded significantly and strongly onto the higher-order

job crafting factor at T1 and T2[34].

Geldenhuys et al. (2020) found that cognitive crafting (and task crafting but not relational

crafting) was a significant predictor of weekly meaningfulness and, as discussed earlier (section

2.2.3.), a limitation of Tims et al.'s (2012) conceptualisation is the exclusion of this critical

component of job crafting. It is, therefore, possible that the lack of a direct link between job

crafting and meaningfulness in Tims et al. (2016) may be due to the fact that their scale did not

capture the full breadth of the construct of job crafting and, therefore, failed to account for the

entire amount of variation that job crafting can explain on meaningfulness. According to Berg et

al. (2013), cognitive crafting "points to enhancements in meaningfulness than can arise from

employees altering how they think about the tasks, relationships or jobs as a whole" (p. 12).

Compared to Tims et al.'s (2016) and taken together with Geldenhuys et al.'s (2020) findings

and Berg et al.'s (2013) arguments, the present study highlights the critical role played by

cognitive crafting to translate job crafting into a more meaningful job. Cognitive crafting can

help employees modifying the physical or relational boundaries of their jobs in a way that is

personally meaningful to them and their self-concept (Geldenhuys et al., 2020). Thus, it may

represent the sealant that gives meaning to the whole job crafting process.

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[34] It is important to note that CFA provided support for the proposed operationalisation of job crafting according to the five dimensions of increasing structural and social resources, increasing challenge demands, decreasing hindrance demands and cognitive crafting. This finding supports the proposed five-factor structure of job crafting and indicates that cognitive crafting is a critical component. This finding challenges new research defining job crafting in terms of two broad (approach-avoidance) dimensions. Cognitive crafting should be seen (in line with the literature, i.e., Berg et al., 2013) as a specific dimension that is different from a behavioural component and cannot be defined either as approach or avoidance crafting. Indeed, cognitive crafting includes elements such as focusing perceptions or linking perceptions (Berg et al., 2013) that cannot be easily (and correctly) captured by an avoidance-approach model.

In contrast with Tims et al. (2013), who did not find a link between job crafting (as increasing challenges) and challenge job demands over time, the present study found that job crafting predicted challenge job demands. An explanation for these conflicting findings could be found in the different measures used to measure challenge demands. Tims and colleagues treated workload as a unique challenge demand. Rodell and Judge's (2009) measure was used to assess challenge (and hindrance) stressors in the present study. The latter is not limited to assessing workload only but includes items measuring factors such as time pressures, perceived responsibility at work, and the use of complex or high-level skills. Therefore, it is possible that by focusing on workload only, Tims et al. (2013) failed to capture demands such as the perceived responsibility at work that may better capture the effects of job crafting on the perceived levels of challenge demands.

This said, whereas in Tims et al. (2013) increasing challenge demands related to an increase in well-being (i.e., an increase in work engagement and a decrease in burnout), in the present study, unexpectedly, challenge stressors had a direct negative effect on coping efficacy, job satisfaction, and well-being. These findings not only imply that job crafting, in terms of increasing challenges, may have a negative effect on employees' well-being (see also next section). They also support previous research indicating that whether specific demands (i.e., workload) are interpreted as a challenge or hindrance demands may depend on the occupational sector or individual differences (Bakker & Sanz-Vergel, 2013).

Van den Broeck and colleagues' (2010) findings, for instance, indicate that police officers and call centre agents might interpret workload and emotional demands differently. In their study, workload positively related to exhaustion in police officers but not in call centre employees. Conversely, emotional demands were negatively related to vigour in call centre

employees but not in police officers. Similarly, Bakker and Sanz-Vergel (2013) found that nurses experienced work pressure (which can be considered a challenge; Bakker & Demerouti, 2017) as a hindrance and not a challenge. In other words, it is difficult to establish whether participants perceived challenge stressors as a challenge or a hindrance and therefore, whether the negative impact of challenge stressors on well-being should be attributed to the fact that these were perceived as stressful (i.e., strain-provoking) and not challenging (i.e., motivating).

Moreover, a recent meta-analysis (Mazzola & Disselhorst, 2019) shows that, in line with the present study, challenge and hindrance stressors often relate significantly to the same outcomes in the same direction (particularly towards strain-related variables). As underlined by Mazzola and Disselhorst (2019) even obvious challenge stressors are likely to measure a certain amount hindrance and "the potential negative outcomes of challenge stressors would far outweigh any potential gains." (p. 9). The present study results support these conclusions since both challenge and hindrance demands predict negative outcomes (the latter being negatively related to P-J fit and coping efficacy)[35].

Taken together, these findings suggest that that caution should be used when challenging employees or when implementing interventions that aim to increase challenge demands. Previous job crafting interventions (e.g., Gordon et al., 2018; van Wingerden, Bakker et al., 2017a) have shown that interventions can be effective to increase the job crafting strategy of increasing challenge demands and that the latter can mediate the positive effects of the intervention on outcomes such as development opportunities or well-being. However, these studies did not test

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[35] Accordingly, the Top-down intervention's negative direct effect on challenge demands (introduced in Section 5.1.2.) can be interpreted positively since employees may have perceived challenge demands as hindrances.

whether job crafting (as increasing challenges) resulted in higher challenge demands. Therefore, to date, there is no robust evidence available to provide specific recommendations regarding the impact of increasing challenge demands in the context of job redesign interventions.

In line with Tims et al. (2013), job crafting did not directly affect the employees' reported levels of hindrance demands in the present study. This finding was unexpected. Indeed, it was anticipated that cognitive crafting (amongst other things) would have helped employees perceive more control on more constrained job elements (e.g., on emotional demands). Therefore, it was reasonable to infer that job crafting (including cognitive crafting) would have related to lower levels of perceived hindrances. An interesting avenue for new research would be to test whether cognitive crafting, as a subscale, negatively relates to perceived hindrance demands over time.

Although it is theorised that job crafting can function as a coping mechanism to protect employees' health (Costantini et al., 2020), limited research has investigated the link between job crafting and coping efficacy. Recently, in a cross-sectional study, van Wingerden and Poell (2019) have shown that job crafting predicted the teachers' levels of resilience. Previously, Vogt et al. (2016) also found that job crafting predicted psychological capital (including resilience). However, the scale used was directed at testing psychological capital (including hope, self-efficacy, and optimism) and not specifically resilience. Considering the limitations of these studies, the present research's findings provide a significant contribution by showing that job crafting can have a beneficial direct impact on the employees' levels of coping efficacy.

An unexcepted direct effect was the negative impact of social resources on coping efficacy. This implies that employees who increased their social resources as a direct (i.e., bottom-up intervention) or indirect (i.e., top-down intervention by increasing job crafting) effect of the interventions may have decreased their coping efficacy consequently. This finding is not

completely surprising. A growing amount of research shows that an increase in social resources can have a negative buffering effect by strengthening the relationship between stressors and outcomes (Jolly et al., 2020). According to the social exchange theory, employees receiving social support will be motivated to reciprocate the benefits received and provide help and support in return (Jolly et al., 2020). However, doing so is costly in terms of socio-emotional resources, energy, and time (Zhang et al., 2020) - hence reducing coping efficacy - and this may imply that the benefits of receiving social support, in some circumstances, do not outweigh the consequent costs.

Regarding the other direct effects hypothesised, in agreement with Hypothesis 3, both P-J fit and coping efficacy predicted meaning. These are significant findings since more research is needed to determine the antecedents of meaning at work (Bailey et al., 2019). Meaning is a critical component of well-being given that human beings ineluctably need purpose and meaning (Seligman, 2011). Designing more meaningful jobs is a long-standing topic in the job design literature to increase job satisfaction, motivation, and performance in employees while reducing absenteeism and turnover (Bailey et al., 2019). Study 1 indicates that designing or redesigning jobs to ensure a good fit between the employees' needs and abilities and their job while enhancing their coping efficacy can be a direct way to enhance the workers' sense of meaning at work. In this sense, the top-down intervention can be seen as a cost-effective way to enhance meaning given its direct effect on job crafting (which, in turn, relates to coping and P-J fit) and P-J fit (see also next section).

Unexpectedly, while coping efficacy had a direct beneficial impact on well-being (but not on job satisfaction), meaning did not directly affect well-being or job satisfaction. As introduced above, meaning can be seen as a well-being dimension itself (Seligman, 2011). Accordingly, it

may represent a distal outcome and not a mediator towards related constructs (i.e., affective well-being). Finally, in line with Hypotheses 3a and 3b, a positive relationship was found between P-J fit and well-being and job satisfaction. Simultaneously, surprisingly, structural resources had a direct beneficial impact on several outcomes (P-J fit, meaning, well-being, job satisfaction). In contrast, unexpectedly, social resources and challenge demands did not predict P-J fit. These findings will be further discussed in the following section.

Overall, the results have shown that job re-design interventions, such as the top-down intervention, that increase job crafting and cognitive crafting in employees, can trigger a set of direct beneficial mechanisms. Caution should be used when encouraging employees to increase challenges and social resources. Since previous research has not tested the direct effects of a job re-design intervention on this set of variables, these findings significantly contribute to the literature.

5.1.4.2. Testing a model of job crafting: indirect effects

A better fit between the perceived characteristics of the job and the individual self (i.e., the worker's skills, knowledge, needs, and motives) has for long been theorised as the mechanism through which job crafting elicits positive outcomes in employees (Berg et al., 2013; Dubbelt et al., 2019; Geldenhuys et al., 2020; Kuijpers et al., 2020; Rudolph et al., 2017; Tims et al., 2013; Tims & Bakker, 2010; Wrzesniewski & Dutton, 2001). No previous research, however, had thoroughly tested this claim.

The findings support the theorised job crafting model and highlight that an improved person-job fit is a critical factor that translates job crafting, in terms of the employee's cognitive and physical changes to the job characteristics, into a more meaningful and satisfying job. As predicted by H3, P-J fit (partially) mediated the positive relationship between job crafting and (i)

meaning (directly and indirectly via structural resources) and (ii) coping efficacy (indirectly via

structural resources) and (fully) mediated the relationship between job crafting and (iii) job

satisfaction (directly and indirectly via structural resources). On the one hand, these findings

mirror previous research that found a link between job crafting, P-J fit, and in turn, meaning

(Tims et al., 2016) or work engagement (Chen et al., 2014). On the other hand, they provide

further evidence and show (1) that, as theorised, enhanced job characteristics (specifically

structural resources) partially explain the positive effect of job crafting on P-J fit. (2) P-J fit

partially mediate the positive relationship between job crafting and coping efficacy and (3) fully

mediate the relationship between job crafting and job satisfaction.

It is acknowledged that the individual's dispositions (i.e., traits, abilities, needs) and

environmental circumstances (i.e., job characteristics) jointly influence the employee's behaviour

and motivation at work (Barrick et al., 2013; May et al., 2004). The more discordant these two

elements are, the more discordant the work situation is for the employee - i.e., there is a lack of

compatibility between the individual's higher-order goals and the job characteristics or between

the latter and the worker's self-concept -, the lower the work meaning perceived by the employee

since he/she perceives that the actions performed at work lack personal significance or

usefulness (Barrick et al., 2013; May et al., 2004). In discordant work situations, individuals'

resources can be depleted since employees need to direct their energy and attention to overcome

hindrances (i.e., the accomplishment of tasks they do not like, are not prepared for, or perceive

pointless) that hinder goal achievement (Barrick et al., 2013) and contribute to a sense of

meaningless work (see Bailey & Madden, 2016).

Based on the results, job crafting emerges as the puller that (a) closes the gap between an

individual's dispositions or needs and environmental circumstances (i.e., employees implement

self-concordant changes to the boundaries of the job that translates into enhanced job

characteristics); (b) creates a better P-J fit which favours concordant work situation and, in turn,

(c) increases coping efficacy (since resources are not depleted in meaningless tasks and are

instead reinforced by engaging in more self-concordant activities), meaning (Tims et al., 2016;

May et al., 2004), and thus, job satisfaction (Bailey et al., 2019). Therefore, a better P-J fit is the

bridge that connects job crafting and the following enhanced job characteristics to positive

outcomes potentially by favouring self-concordant work situations for the employees.

Previous research has shown that P-J fit is an antecedent of meaningful work (Baley et

al., 2019; May et al., 2004; Tims et al., 2016). It also uniquely contributes to predicting their

work-related behaviours and attitudes (Chhabra, 2015) and is correlated with critical

psychosocial outcomes, including job satisfaction, quality of work-life, organisational

commitment, intention to quit and (negatively) with indicators of strain (Chhabra, 2015; Kristof-

Brown et al., 2005; Memon et al., 2015). In other words, a good P-J fit is critical for workers'

engagement and job satisfaction. As theorised by previous research, the results indicate that an

enhanced P-J fit represents a key mechanism that explains why and how job crafting determines

positive outcomes.

Unexpectedly, however, P-J fit was not a significant (direct) mediator in the positive

relationship between job crafting and (iv) well-being - although, as expected, job crafting had a

significant positive total and indirect effect on well-being (and job satisfaction) and P-J fit

(which was predicted by job crafting) had a positive indirect effect (via coping) on well-being.

Since, in line with the general model, coping efficacy and structural job resources emerged as the

primary mediators in the positive relationship between job crafting and well-being, P-J fit, as

measured, cannot be seen as the only mechanism through which job crafting elicits positive

outcomes. An increase in structural resources and coping efficacy also appears critical to ensure that job crafting determines positive outcomes.

A recent meta-analysis (Rudolph et al., 2017) has shown that the job crafting dimension of increasing structural resources accounts for more variance in the positive relationship between job crafting and work engagement, job satisfaction, and performance compared to the other job crafting dimensions (which, however, were positively related to these outcomes with the exceptions of decreasing hindrance demands). Therefore, and in line with Study 1's findings, an increase in structural resources may be the most critical (behavioural) job crafting strategy to improve well-being and performance. Structural resources not only were the only job characteristics that mediated the positive relationship between job crafting and P-J fit, they also had a positive total or total indirect effect on every outcome under scrutiny (Table 21).

This said, according to Rudolph et al. (2017), their findings are consistent with theory suggesting that job crafting leads to an improved P-J fit which, in turn, positively impact well-being and job attitudes (note, they did not test a model to verify this proposition). The results of Study 1 broadly support this conclusion (as discussed above and below, P-J fit emerged as a pivotal factor that relates job crafting to positive outcomes). However, the lack of a positive mediated relationship between job crafting and well-being via P-J fit suggests that something is missing in theory or that the scale used in the present research failed to account for the whole construct of P-J fit. This is reasonable. Indeed, the scale used measured demands-abilities fit and needs-supplies fit. The concept of P-J fit may be broader and include aspects such as personality-job fit that are not specifically measured by Cable and DeRue's (2002) measure - see Cain, 2012 for an overview of how a mismatch between one's personality and the job context may impact the individual's attitudes and well-being. Future research might address this aspect by testing the

impact of job crafting on work outcomes via P-J fit using a broader conceptualisation of the latter.

The results did not fully support H3a. Namely, although, as expected, P-J fit had a positive relationship with well-being and job satisfaction, this relationship was not mediated by meaning as hypothesised. Conversely, the model's inspection confirmed the predicted mediated positive relationship of P-J fit on well-being via coping efficacy (H3b). On the one hand, these findings support previous research suggesting that job crafting leads to a better P-J fit, which, in turn, has a positive impact on the workers' attitudes and well-being (Rudolph et al., 2017). Indeed, job crafting had a direct and indirect positive effect on P-J fit, which, in turn, had a positive relationship with coping, meaning, well-being, and job satisfaction. On the other hand, and taken together with the results of H3, the findings indicate (1) that P-J fit is not only directly involved in the relationship between job crafting and positive outcomes. As seen above, P-J fit does not significantly mediate the relationship between job crafting and well-being. However, P-J fit can still influence positive outcomes such as well-being by enhancing other psychosocial factors (i.e., coping efficacy). (2) The results show that the positive indirect effect of P-J fit on well-being was better explained by an increase in coping efficacy rather than an increase in meaning. The latter result can be explained by the fact that an increase in P-J fit, by definition, allows employees to make better use of their abilities and strengths at work which in turn increase their resilience and well-being (Seligman, 2011). Conversely, as introduced earlier, meaning can be seen as a facet of the broader construct of well-being (Seligman, 2011) and measuring (with job satisfaction) the eudaimonic or cognitive component of psychological well-being. Whereas affective well-being better captures the hedonic subdimension of SWB (Daniels et al., 2018; Diener et al., 2018). Accordingly, it is possible that meaning should not be seen as a

mediator in the relationship between P-J fit and well-being (since it reflects a specific dimension of well-being itself) but as a distal outcome. Under this light, a model where P-J fit predicts directly and indirectly (via coping) meaning, job satisfaction, and well-being could better reflect the mechanisms through which job crafting elicits positive outcomes via an enhanced P-J fit.

From the inspection of the model, other noteworthy findings emerged. For instance, challenge demands and social resources did not predict P-J fit. As seen earlier, employees receiving social support may feel the need to return the favourable treatment received, and this could require engaging in behaviours that do not come naturally to them (e.g., an introverted employee feeling forced to engage in social activities) and thus impact the perceived P-J fit. An increase in challenge demands may require employees to acquire new skills or abilities and thus, at least temporarily, affect their perceived P-J fit. Job crafting, structural job resources, and P-J fit were strongly positively related to each other and directly or indirectly positively related to every subsequent outcome in the model (the only exception was a non-significant relationship between job crafting and hindrance demands). Moreover, as predicted by the general model, structural resources partially mediated the relationship between job crafting and P-J fit, which partially mediated the relationship between structural job resources and meaning at work and coping efficacy, with the latter, in turn, partially mediating the positive relationship between P-J fit and well-being and directly predicting well-being.

These findings indicate that it is worthy for organisations to invest in increasing the level of structural job resources and in interventions (i.e., the top-down intervention) that increase job crafting and, in turn, the perceived level of structural resources among employees, their P-J fit, coping efficacy, and well-being. Challenge demands emerged as negatively related to coping efficacy, well-being and job satisfaction. The negative effect of challenge demands on well-being

was partially mediated by coping efficacy. This finding is consistent with previous research highlighting a positive link between challenge demand and indicators of strain (Mazzola & Disselhorst, 2019) and, as introduced earlier, suggest that participants perceived challenge demands as a hindrance.

In summary, with some minor unexpected results, the findings largely supported the hypothesised model and highlight that the mechanisms thought to underpin job crafting's beneficial effects are supported in the present research. The positive effect of job crafting on every outcome in the model (except hindrances) and the positive chain of reactions initiated by job crafting suggest strongly that job crafting is a valuable tool for employees to protect their health and well-being and to stay engaged at work.

Interventions, such as the top-down intervention, that increase job crafting behaviour, could be a cost-effective tool to improve well-being and reduce absenteeism, presenteeism, and sick leave. This said, job crafting interventions should focus on teaching employees to increase structural resources and cognitive crafting. An increase in social resources and challenge demands can have detrimental effects on employees, and job crafting does not seem to decrease hindrance demands. Future research might investigate in more detail the relationship between job crafting with these job characteristics to determine when and how job crafting elicits positive versus negative outcomes as a result of changes in social resources and job demands.

5.2. Study 2 Discussion

As indicated in the Method (section 3.3.), Study 2 has been implemented in a context of significant change, and different disruptions have been encountered in the implementation process. The findings, accordingly, must be taken with caution and with awareness of the study's involuntary limitations (refer to sections 3.3.1. to 3.3.6. above and 5.4. below), which,

nevertheless, very much reflect the challenges of implementing "real-world interventions" under complex contextual factors (see Nielsen & Miraglia, 2017; Pawson, 2013). Direct comparisons with Study 1 are avoided given that the context, implementation, design, ('luck' in being able to follow the planned procedures and methods), the robustness of the findings, and ability to test the hypotheses differed substantially in the two studies. In Study 2, it was not possible to test Hypotheses 2, 3, 3a, 3b, and 6 because the limited amount of data collected did not allow to run SEM analyses. Nevertheless, it was possible to test the main effects of a job crafting intervention (H1) and (with severely limited data) of the management development intervention (H4) on the hypothesised outcomes as well as to test the effect of the interaction of the bottom-up and top-down intervention (H5) on police officers. It is critical to remind that considered the limited amount of data available in Study 2, the significance level in study 2 was set a $p < .10$ to increase the power of the tests.

5.2.1. A job re-design intervention in a Police context

Overall, from Study 2's findings, it emerges that Police officers in the job crafting condition, whose responses were available at both data collection points, have experienced adverse outcomes following the intervention. Indeed, participants in the experimental (job crafting) condition reported a decrease in P-J fit, coping efficacy, meaning at work, and structural resources at T2 compared to participants in the wait-list control group. They have also experienced (according to *t*-tests) a decrease in support from colleagues at T2 compared to T1.

As underlined by Molina and O'Shea (2020), "engaging in proactive behaviour when one is motivated by a sense of pressure (i.e. controlled motivation) can be harmful both for well-being and performance" (p. 150). Considered the difficulties and the changes that public organisations in general, and our sample in particular, have been facing due to exogenous factors

like austerity measures and endogenous factors like changes in management or procedures, it is possible that learning about job crafting has thus had a negative impact on police officers. Namely, police officers have learnt that it is possible to proactively, purposefully re-design one's job. Nevertheless, their job crafting efforts could not be directed towards a conscious and autonomous act of job enrichment; instead, they were coercively driven by the need to cope with increased demands and reduced resources. The perceived "pressures" to engage in proactive behaviours, highlighted by an increase in the job crafting strategy of decreasing hindrance demands (as emerged from *t*-tests on the subscales) in the job crafting group, might have led to frustration and adverse outcomes.

An alternative explanation for the adverse outcomes associated with the job crafting intervention is that participants have undergone beta or gamma change rather than alpha change (Millsap & Hartog, 1988). (Alpha, beta, and gamma change refer to different types of pre-test/post-test change that could be detected in intervention research relying on self-report measures; see below and Millsap & Hartog, 1988). Namely, a limitation of self-report questionnaires in longitudinal designs is that it is difficult to determine whether changes in the level of an outcome measure reflect (a) actual change in the level of a psychological construct (alpha change). In this case, the change in the level of job crafting at T2 reflects real differences in job crafting behaviour compared to T1. (b) The participant's redefinition of the instrument used (beta change). In this case, for example, (following the intervention) a participant alters the subjective metric of her job crafting ability in relation to the measuring items (i.e., a T1 score of 5 becomes a T2 score of 2 because a participant realises that, regardless of whether her job crafting activity has increased or decreased, the answer to the specific item better reflects a 2 and not in a 5). In other words, the participant realises that she does not engage in specific crafting

behaviours as she previously thought (even if she has increased her job crafting activity) and

changes the subjective metrics to evaluate her job crafting activity. Finally, changes in the level

of an outcome measure may reflect (c) the participant's redefinition of the concept/construct

measured (gamma change; Theeboom et al., 2014). Namely, following the intervention, a

participant re-conceptualises the concept of job crafting such that T1 job crafting measured a

different construct compared to T2 (Millsap & Hartog, 1988). For example, an employee

answered the T1 questionnaire without any knowledge about job crafting and thus with no

conceptual frame of reference attributed to job crafting. Following the intervention and the

(traditional) knowledge gained about job crafting, he/she changes the conceptual frame of

reference attributed to job crafting such that the latter, at T2, reflects the traditional view of job

crafting as assessed by the measurement instrument and its items (Riordan et al., 2001).

Consequently, comparisons between T1 and T2 job crafting are not reliable since the measure

used operationalises different constructs (Riordan et al., 2001). According to the literature,

gamma change is expected to occur mainly in the experimental group as a result of the

intervention (Millsap & Hartog, 1988; although Millsap and Hartog argued that it could also

occur in the absence of an intervention).

Overall, it is possible that learning about job crafting and participating in the workshop

has led participants in the experimental group to re-evaluate their job crafting ability (and/or the

realistic possibilities they have to engage in actual job crafting behaviour). To make an example

from an actual participant: a participant during the intervention set the job crafting goal of

scheduling weekly walking team meetings to increase her social resources. The process of setting

a goal might (1) push her to reflect on her relational crafting. She might realise that she does not

engage in relational crafting (or does not have the level of social resources) as she instinctively

thought (thus, her answers to T1 did not reflect her actual perceived level of social resources and T2 questions on increasing social resources will change negatively compared to T1). (2) Not achieving the goal due to contextual hindrances might further negatively impact the participant's own perception of her ability to craft/increase social resources (again, the answers to the questions on increasing social resources will reflect this at T2). In brief, it is conceivable that participants in the experimental group have undergone beta or gamma change, particularly considering that the context where the intervention was implemented did not allow for easy implementation of the job crafting strategies learned.

Another possible explanation for the negative outcomes related to the job crafting intervention comes from Zhang et al. (2020). They found that employees who engage in proactive behaviours may be perceived as less warm from their colleagues and receive less co-worker support, particularly in teams with a low initiative climate. Proactive behaviours such as job crafting might, therefore, lead to negative consequences. In particular, when employees engage in actions that are distinct from shared norms, routines, and codes of conducts (or that challenge the status-quo) in contexts that are not supportive for innovative or unconventional behaviours, they can experience a worsening in job characteristics such as social support (Zhang et al., 2020).

Established and formal norms of conduct might be deep-rooted in the context of police considered the very deep mission of Police forces to maintain the order in society and provide a sense of safety and control in the communities by 'upholding the law fairly and firmly' (Policing Vision 2025, n.d.). Novel ways of behaving may, therefore, not be perceived positively (or may be perceived as risky inasmuch not firmly regimented) and might lead to adverse consequences. The decrease in co-worker support in the experimental job crafting group mirrors Zhang and

colleagues' (2020) findings and may indicate that job crafting interventions need a tailored

approach in the context of police to avoid determining adverse consequences. For instance, it

might be necessary to ensure that supervisors and supervisees formally agree on specific job

crafting actions to ensure that these are safe, realistic, agreed, and authorised[36].

To the best of my knowledge, only van den Heuvel et al. (2015) have implemented a job

crafting intervention in a Police context (in the Netherlands). In this study, the primary analyses

(RM-ANOVAs) did not reveal any significant effect in the experimental group following the

intervention. Subsequent analyses (*t*-tests), conversely, revealed that the intervention group

reported less negative affect, higher self-efficacy, higher developmental opportunities, and LMX

at T2 compared to T1. However, the follow-up in this study was relatively short (1-2 weeks after

intervention). The present research indicates that (in Police contexts) the positive effects of a job

crafting intervention may fade away. More research is needed to understand under what

circumstances and in what way job crafting interventions bring positive outcomes in a Police

environment.

It is important to note, in conclusion, that while the job crafting condition was related to

different adverse outcomes, this was not the case for those participants whose line managers

attended the management development training. Instead, it was the opposite, with regression

analyses indicating that participants who received both interventions reported higher well-being

than other participants. This aspect might indicate that, in turbulent times and specific contexts

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[36] In one of the workshops, one participant expressed the desire to have a slightly longer break so that he could carry out an entire workout in the Constabulary gym. He said, however, that he did not think he would be authorised by his manager (he had never asked). Nevertheless, the senior manager who was attending the session said that he would have had no problem authorising a slightly longer break as he could see the benefit of this job crafting action.

(i.e., Police), job crafting interventions only work if line managers are prepared to support job crafting in their teams. However, the limited amount of data available does not allow to establish robust conclusions regarding the effect of an integrated (top-down*bottom-up) intervention (or a top-down intervention only; note, no significant effects were found among the eleven participants in the top-down condition) in the Study.

5.3. Implications for Research and Theory

The findings of the present thesis have several implications for research and theory. Study 1, in particular, by comprehensively addressing the research objectives and hypotheses, provided significant methodological and theoretical contributions. In each session of the Discussion, the relevant contributions of the thesis have already been presented. In Table 25 below, these contributions and the following implications for research and theory are summarised (and expanded) with reference to whether they are of a high, medium, or minor significance.

Table 25

Summary of contributions and implications for research and theory ordered by level of significance

Evidence Statements - Contributions	Significance	Implications for Research or Theory
❖ Study 1		
1. A job crafting intervention based on a new conceptualisation of job crafting, designed by integrating previous interventions and implemented using a well-powered design, effectively elicits long-term positive outcomes in employees (i.e., an increase in social resources and job satisfaction). (Note, the effect of the intervention on job satisfaction is $p < .05$ for the total effect).	High	With a few exceptions, previous research had limitations that make it difficult to draw robust conclusions regarding job crafting interventions' effectiveness (sections 2.2.2.1., 5.1.1.). Study 1 provides a significant theoretical contribution by showing that the beneficial effects of a job crafting intervention are sustained over time and can also be found in larger samples than most previous research (see section 5.1.1. for further information). The attention devoted to minimising biases and threats to validity (sections 3.1, 3.2., see also 5.4. below) further strengthens the findings' reliability. These elements imply that further investigations on job crafting interventions (see below) could be worthy and justified.
		It would be worthwhile to replicate the bottom-up intervention in a different job context or country to assess further its external validity. Further research is necessary to determine whether job crafting's proposed operationalisation is the key to elicit positive outcomes in job crafting interventions regardless of context.
		At the same time, future studies are encouraged to assess the intervention's effects at different points in time (i.e., one-month follow-up, nine-month follow-up). This would provide critical information about the short, medium, and long-term effects of job crafting interventions and provide more tailored recommendations.
		For instance, it was argued (section 5.1.1.1.) that in a demanding work context such as the call-centre, systematic group sessions are needed to remind the workers of the job crafting strategies learnt and help them implement these in

		their job in an ongoing fashion - and thus, ensure the benefits of the interventions do not decline with time. To test this claim, research is needed to assess the impact of the intervention at different points in time (and possibly compare different groups based on the number of sessions attended) and determine whether the benefits of the intervention decline over time and whether systematic group sessions reverse or minimise this trend. Finally, future research could use a job crafting measure that includes items assessing also crafting towards strengths or interests (Kooij et al., 2017). As discussed in section 5.1.1.1., based on the bottom-up intervention design, it is reasonable to infer that an increase in crafting towards strengths or interests could explain the intervention's beneficial effects on job satisfaction and social resources. Research is needed to test this claim.
2.The top-down leadership development intervention directed at the workers' job design and well-being is a promising tool to elicit beneficial cognitive, behavioural, attitudinal, and affective outcomes in employees.	High	Considered the scarce amount of (and the often elusive or disappointing findings of) leadership development interventions (Elo et al., 2014; Daniels et al., 2017; Ford et al., 2018), the present study provides an important contribution by providing evidence of a top-down intervention that effectively enhanced the perceived job characteristics in employees, their levels of job crafting, P-J fit, meaning at work, coping efficacy, job satisfaction, and well-being four months after implementation. Future research could replicate the present study in different professional and cultural contexts to allow broader generalisations regarding the intervention's effectiveness. Considering that the intervention could not be implemented entirely in the present study (section 3.3.2.), future interventions should lead to even better outcomes.
3. (More specifically) Leadership training in social and emotional competencies can be critical to enhance employee job crafting, perceived job quality, P-J fit, coping efficacy, and well-	High	As discussed earlier, a low amount of research has rigorously tested the effectiveness of interventions directed at managers' social and emotional competencies. It is unclear whether and to what extent these programs elicit positive organisational outcomes (Riggio & Lee, 2007), and the methodological limitations of previous interventions (e.g., small samples, short follow-ups) do not allow to draw robust conclusions (see section 5.1.2.2).

being. Overall, leaders' social and emotional competencies may be crucial for employees' job crafting and well-being. Simultaneously, training in job-design related knowledge can help line managers perform better their job and promote well-being at work.

The findings of Study 1 offer a significant contribution by showing that social skills training is indeed a valuable component in the context of a leadership development intervention to elicit long-lasting positive outcomes in employees. By using a more robust design compared to previous research, an intervention explicitly targeted to social skills, and a larger sample, the present study contributes to the literature by showing that social skills training in line managers can be effective to enhance different (and various) outcomes in subordinates compared to those investigated in previous research.

Further research is needed to assess whether and to what extent supervisors' social skills improve due to tailored training and whether the improved social skills explain the positive outcomes of the intervention on employees.

Future research could specifically focus on the impact of line managers' social and emotional competencies on employees' job crafting (and, in turn, well-being). Considering the present study's findings, this is a promising avenue of research.

Finally, leadership development in job-design related knowledge could be a cost-effective method to enhance the workers' job design and well-being. Future research may isolate this element to test whether a micro-intervention to increase the managers' job-design related knowledge effectively enhances the workers' jobs and well-being.

4. There is a direct link between the line managers' attitudes, behaviours, skills, leadership style, and subordinates' job crafting levels.	High	The findings of Study 1 provide quasi-experimental support to previous cross-sectional research highlighting a link between the line managers' attitudes, behaviours, and leadership style with the subordinates' levels of job crafting (section 5.1.2.3.).

According to the results, the employees' levels of job crafting (and, in turn, their well-being) can be increased by providing line managers with training designed to boost their social skills and job design-related knowledge and assist them in purposefully using these skills to empower team-members and to enhance the |

		quality their jobs. The findings have important implications for research and theory (see below).
5. Leadership is an essential antecedent of job crafting. Leadership training has a causal effect on employees' job crafting.	High	The top-down intervention results provide the first quasi-experimental evidence in support of research (e.g., Wang et al., 2020; Thun & Bakker, 2018; Zhang & Parker, 2019) theorising that leadership is an essential antecedent of job crafting (section 5.1.2.3.).
		The findings have a broad range of implications for research. For instance, it would be worthwhile to assess more in-depth the relationship between leaders' characteristics, behaviours, and skills with employees' job crafting. Do the managers' personality traits influence employees' job crafting? To what extent leaders' emotional intelligence affect employees' perceived opportunity to craft and job crafting? Do the managers' job characteristics (e.g., level of hindrances), work-related outcomes (i.e., work-related stress), and individual circumstances (i.e., work-family conflict) influence the employees' levels of job crafting and, in turn, well-being? These and other research questions could be investigated based on the findings.
		Similarly, based on the promising findings, it would be worthwhile to test the impact of other initiatives directed at the managers' competencies and abilities on employees' job crafting. For example, providing line managers with one-to-one coaching could be a good means to assist them in assessing their strengths and weaknesses, built on strengths to boost performance (in line with the intervention's design) and (in line with the findings) enhance workers' job design, proactive behaviours, and well-being.
		Qualitative research may provide more nuanced information on leaders' role in employees' perceptions and job crafting.
		The findings (considering the top-down intervention results, the bottom-up intervention, and the integrated intervention) also have important implications for theory as discussed in sections 5.1.2.3., 5.1.2.4., 5.1.3 and as follows.

6. The job re-design construct introduced in this thesis, dyadic Leader-Member Role Adjustment (LMRA), expands job crafting theory and captures the dynamic, circular, beneficial, and sustainable job re-design process involving team-leader and team-members.	High	A new job re-design construct was introduced in the present research to provide a more robust explanation of the findings and advance the job re-design literature based on previous research (sections 5.1.2.3., 5.1.2.4., and 5.1.3). This new construct, named dyadic Leader-Member Role Adjustment (LMRA), is based on the social exchange theory and refers to the mutual relationship of trust and positive social exchange between team-leader and team-member whereby the team-member is empowered to adjust his/her role with the support (tacit or overt) of the supervisor for the achievement of positive outcomes that benefit both. LMRA is a different construct compared to job crafting - although it includes a facet named team-member role adjustment which refers to the worker's enactment of changes to the job's boundaries - and explains (sections 5.1.2.4., 5.1.3) why the top-down intervention had a beneficial direct effect on job crafting whereas, unexpectedly, the integrated intervention (and the bottom-up one) did not. The concept of LMRA has broad implications for theory and research.

Research is needed to refine the theoretical underpinning of LMRA. A new scale could be developed to assess LMRA and its relationship with psychosocial and organisational outcomes such as work engagement and job satisfaction. Job re-design interventions could be designed based on LMRA and tested for their effectiveness.

Namely, simultaneously involving line managers and employees in job re-design initiatives with the aim to maximise the dyadic leader-member role adjustment is theorised to be a promising means to enhance well-being in the organisations. Such interventions are expected to be more effective than job crafting interventions to enhance the quality of employees' jobs, team leaders' and team members' performance, and well-being. |
| 7. Increasing job crafting levels through tailored interventions (i.e., the top-down intervention) can help employees enhance their | High | The results have shown that job re-design interventions, such as the top-down intervention, that increase job crafting and cognitive crafting in employees can trigger a set of direct and indirect beneficial outcomes via job crafting. More specifically, the findings largely supported the hypothesised structural model and highlight that many of the mechanisms thought to underpin job crafting's |

perceived job characteristics, P-J fit, coping efficacy, meaning at work, job satisfaction, and well-being. Job crafting's positive effect on distal outcomes such as meaning at work, job satisfaction, and well-being is (partially) explained by enhanced job characteristics, P-J fit, and coping efficacy.

beneficial effects are supported in the present research (sections 5.1.4 to 5.1.4.2.). No previous research had tested a comprehensive model of outcomes and mediators of job crafting in relation to well-being. The implications of the findings are various.

Job crafting interventions can be designed or enhanced according to the mechanisms through which job crafting favours positive outcomes. For instance, in the context of a job crafting intervention, it may be worthwhile to augment the quality and amount of structural job resources available for employees since the latter emerged as an essential mediator in the relationship between job crafting and positive outcomes (either directly or indirectly via P-J fit).

Simultaneously, job crafting interventions should put greater emphasis on exercises aimed at improving P-J fit. - e.g., purposefully teaching employees to craft their job characteristics to enhance P-J fit; identify and increase tasks and job challenges that stimulate their strengths and are aligned with their interests or motives. Indeed, an enhanced P-J fit emerged as a critical factor that translated job crafting into a more meaningful and satisfying job (while also boosting the workers' coping efficacy).

Including elements aimed at boosting the employees' resilience (e.g., positive psychology exercises; Seligman, 2013; Magyar-Moe, 2009) may augment the impact of job crafting interventions since an increased coping efficacy emerged as another critical mechanism through which job crafting enhances well-being.

On a different note, based on the bottom-up intervention's findings and design, it is sensible to hypothesise that job crafting would have shown an even more substantial effect on P-J fit (and in turn, the other outcomes) if the job crafting strategies of crafting towards strengths and crafting towards interests (Kooij et al., 2017) had been assessed. Indeed, although some exercises in the bottom-up interventions (e.g., steps 2 and 4; section 3.3.1.3.) were also directed at

increasing employees' crafting towards interests and strengths, the latter were not directly measured in the present research.

Future research could include items to assess crafting towards strengths and interests to the present research's scale to test this claim. Overall, it is argued that job crafting scales should include the strategies of crafting towards strengths and interests to the other dimensions to broaden the conceptualisation of job crafting and capture better the breadth of this construct.

8. Increasing challenge demands may be a counter-productive job re-design strategy and negatively impact employees' well-being, job satisfaction, and coping efficacy.	High	The findings showed that (1) job crafting affected positively the employees' perceived levels of challenge demands. (2) Challenge demands, in turn, had a direct negative effect on coping efficacy, job satisfaction, and well-being (note, the negative effect of challenge demands on well-being was partially mediated by coping efficacy). No previous research had tested the impact of a job re-design intervention on job crafting and, in turn, challenge stressors and well-being.

As discussed in section 5.1.4.1, the findings, in line with previous research (e.g., Mazzola & Disselhorst, 2019), suggest that that caution should be used when challenging employees or implementing interventions that aim to increase challenge demands. Simultaneously, the results support previous research highlighting that hindrance and challenge demands may both be perceived as stressful and that depending on individuals and professions, the same demand (e.g., workload) may be perceived as either strain-provoking or motivating (see section 5.1.4.1). |
| 9. Job crafting interventions can effectively elicit positive effects on employees regardless of whether they volunteer to attend the training sessions. | Medium | Previous job crafting interventions (except for Demerouti et al., 2020) involved volunteers (e.g., Demerouti et al., 2017; Dubbelt et al., 2019; Gordon et al., 2018). Evidence indicates that people who volunteer for experiments are more sensitive to biases like demand characteristics than people required to be involved (Robson & McCartan, 2015). In the present study, participation in the workshop was made compulsory by the HR department. The training's compulsory element reduces participation and self-selection bias and enhances the study's external validity (although it may limit the training effectiveness; refer to section 5.1.1.3.). Moreover, the findings indicate that development |

		initiatives directed at the workforce may elicit positive outcomes regardless of whether employees voluntarily sign-up or not for training sessions.
		It would be interesting to compare the intervention's effect on different groups (volunteers, control-group, required to be involved) to assess differences between the groups following the intervention's implementation. This type of evidence would allow making more specific recommendations about the people most likely to benefit from job crafting interventions.
10. The job crafting intervention can elicit beneficial effects following the implementation of only one group session. Full implementation of the intervention (or the involvement of volunteers only) may lead to even more substantial outcomes.	Medium	The bottom-up intervention could not be implemented entirely due to organisational constraints. Unlike previous job crafting interventions that implemented two or more group sessions, participants in the present study could only attend a three-hour workshop. At the same time, as said above, participants did not volunteer to participate in the workshop. The positive effects suggest that even better outcomes could have followed the present study's participation if the intervention had been implemented fully (and using volunteers only; see section 5.1.1.3.).
		Research is needed that implements the intervention fully to test this claim. On the other hand, the beneficial effects found highlight that it may be worth it and relatively cost-saving to run single job crafting workshops to enhance the workers' job satisfaction and perceived level of social resources.
11. The supervisors' management style may affect the outcomes of a bottom-up intervention. Supervisors engaging in monitoring and controlling behaviour or in a transactional style of management (focused on performance and the strict adherence to operational procedures) may negatively impact the employees' ability to engage in proactive	Medium	As discussed in Sections 5.1.1.1. and 5.1.1.2., the work experience in call-centre may worsen over time (Holman & Axtell, 2016) due to the stressors experienced in this profession. Line managers are critical to assisting workers in enhancing their jobs and providing a supportive space for employees to craft and keep crafting their job.
		Line managers engaging in a transactional style of management may contribute to make the call-centre job experience worse over time and hinder the employees' ability to improve the quality of their jobs. Conversely, an empowering and supportive leadership style emerged as critical to empower employees, enhance their perceived levels of autonomy and control, and facilitate positive outcomes such as job crafting or well-being (section 5.1.1.2).

behaviours, enhance the quality of their job, and perceive a better work climate.		Future studies could investigate whether and to what extent the supervisors' leadership style (e.g., transactional versus transformational) affects the outcomes of job re-design and bottom-up interventions in different working contexts. Simultaneously, cross-sectional or longitudinal studies could investigate the impact of transactional leadership or laissez-faire leadership on employees' job crafting and job crafting interventions. Previous research did not pay particular attention to these specific types of leadership styles in relation to job crafting, even though they are broadly acknowledged in the literature (DuBrin, 2013).
12. Job crafting interventions may elicit positive effects not exclusively by increasing job crafting behaviours in all participants but also by improving the psychosocial working environment more broadly.	Medium	Pro-social job crafting actions (and goals) can be beneficial for both the crafter and his/her co-workers and may explain the bottom-up intervention's beneficial impact on social resources and job satisfaction (refer to section 5.1.1.4. and Tims & Parker, 2020). Future research is encouraged to investigate also qualitatively the mechanisms through which job crafting interventions elicit positive outcomes. Namely, in-depth interviews and focus groups can help determine what changes the participants have experienced following the implementation of an intervention. Simultaneously, future research could test whether approach-oriented job crafting impacts positively co-workers' well-being and perceived organisational climate.
13. For the successful implementation of interventions directed at workers' job design and well-being, it may be crucial to (1) involve line managers in the implementation process to gain their commitment towards the intervention. (2) Ensure line managers feel 'in charge' of the improving jobs and as the intervention leaders	Medium	As discussed in section 5.1.2.1., the study's findings support previous research highlighting the critical role of line managers in the successful implementation of interventions directed at the workers' job design and well-being. In line with previous research, the findings also provide further theoretical insights (e.g., the importance of stimulating intrinsic motivation in line managers; section 5.1.2.1) The top-down intervention provides promising evidence that (1) coaching principles aimed at stimulating accountability, intrinsic motivation, and goal achievement may assist management commitment to job re-design interventions and can successfully be implemented in an intervention directed at workers' job design and well-being. (2) That social-skills training (and job design-related

to experience intrinsic motivation and pursue intervention-related goals and intervention-beneficial actions that favour the intended intervention outcomes. (3) To provide line managers with the personal resources necessary to implement the change process successfully.		knowledge) can represent a valuable resource to assist line managers in engaging better with and inspiring workers in the context of job re-design. Future research could be worthwhile to assess the managers' level of commitment and intrinsic motivation towards the intervention and test the impact of these factors on the intervention's outcomes. Simultaneously, future studies could assess whether leadership development based on coaching principles and directed at the managers' social skill is useful to enhance the managers' motivation and commitment towards broader job re-design programs (e.g., system-wide interventions).
14. Job crafting interventions may fail or even be counter-productive if employees' job crafting goals and actions are misaligned with the managers' expectations and acceptance zone.	Medium	In agreement with LMRA, and the arguments discussed in sections 5.1.2.4. and 5.1.3, for proactive bottom-up job re-design to be successful, employees must align their proactive actions and goals with the line managers' expectations and acceptance zone. Alternatively, employees' job re-design actions can negatively impact the social exchange with the line manager and determine adverse outcomes (e.g., Fong et al., 2020). Future research could investigate this proposition more in-depth. Research involving mixed methods (i.e., experimental design with qualitative elements) could follow up the job crafting intervention with in-depth interviews with line managers to understand their feelings and reactions following the employees' job crafting. Simultaneously, managers' ratings-evaluation of employees' proactivity (i.e., positively valued versus negatively valued) could provide information on whether the line managers' evaluations of employees' job crafting affect the latter's outcomes in the context of an intervention.
15. Cognitive crafting may represent the sealant that gives meaning to the whole job crafting process.	Medium	Previous research found that job crafting did not directly related to meaningfulness when the measure used did not include cognitive crafting (Tims et al., 2016). In line with previous research (Geldenhuys et al., 2020), the present study found that job crafting, as operationalised (i.e., including cognitive crafting), had a direct positive effect on meaning. As discussed in section 5.1.4.1., the findings (including CFAs' results), in line with previous research,

		highlight the critical role that cognitive crafting plays in the job crafting process to ensure that job crafting translates into a more meaningful job.
		Future research could explore further the role of cognitive crafting in the job crafting process. (1) Job crafting interventions could assess job crafting dimensions' separate impact on work outcomes to determine whether cognitive crafting is more or less critical than other job crafting dimensions. (2) Assess whether cognitive crafting moderates the positive impact of a job crafting intervention on work outcomes. Simultaneously, (3) it would be worthwhile to assess whether cognitive crafting moderates or mediates the impact of the other job crafting dimensions on distal outcomes such as meaning or well-being. Finally, (4) an exciting avenue for new research would be to test whether cognitive crafting negatively relates to perceived hindrance demands over time as theorised in the present research (refer to sections 2.2.3. and 5.1.4.1.).
16. A five-factor job crafting structure fits the data well and indicates that cognitive crafting is a critical component of job crafting. The findings support job crafting's proposed operationalisation (based on the integration of Tims and Bakker's and Wrzesniewski and Dutton's models).	Medium	CFAs provided support for job crafting's proposed operationalisation according to the five dimensions of increasing structural and social resources, increasing challenge demands, decreasing hindrance demands, and cognitive crafting. Accordingly, cognitive crafting should not be excluded from job crafting's operationalisation, given that it emerges as a critical dimension of the higher-order job crafting factor.
		Research is ongoing to establish a conceptualisation of job crafting that integrates previous research and findings (Hu et al., 2020). More recent research highlights how job crafting could be better defined by distinguishing approach and avoidance job crafting (Bruning & Campion, 2018; Zhang & Parker, 2019). However, a critical aspect to clarify is whether cognitive crafting (according to the strategies initially proposed by Wrzesniewski & Dutton, 2001; Wrzesniewski et al., 2013 and Berg et al., 2013) can be correctly fitted into an approach/avoidance model of job crafting.
		For instance, cognitive crafting strategies such as linking perceptions (i.e., drawing mental parallels between aspects of the job and interests or experiences; Berg et al., 2013) cannot be easily defined as either approach or

		avoidance strategies. Moreover, being cognitive by definition, cognitive crafting cannot be easily compared to behavioural approaches to job crafting (although cognitive and behavioural crafting may overlap to some extent; Hu et al., 2020).
		Simultaneously, job crafting strategies such as optimising demands, re-organising tasks and schedules, re-define or adapt social relationship (refer to the intervention's details in section 3.1.1. and the workbook in Appendix) do not necessarily involve expansion-oriented or avoidance-oriented behaviours. - e.g., re-design work to perform a given task at a particular time or on a specific day that better fit with the task in question (e.g., perform creativity tasks in the morning and routine tasks in the afternoon) cannot be seen as either approach or avoidance crafting.
		Future research needs to clarify whether an approach or avoidance view of job crafting captures the full breadth of job crafting or whether it is preferable to rely on the original conceptualisations of job crafting (integrated as in the present research and possibly expanded including elements such as crafting towards interests and strengths and interests).
17. Decreasing the employees' levels of challenge demands (e.g., through tailored interventions) may positively impact employees' well-being.	Medium	Following statement 8 above, future research could assess whether interventions purposefully directed at decreasing the levels of challenge demands have a positive impact on employees' well-being and resilience.
18. Job crafting can function as a coping mechanism to protect employees' health and well-being.	Medium	Although it is often theorised that job crafting can function as a coping mechanism to protect employees' health (Costantini et al., 2020), limited research has investigated the link between job crafting and coping efficacy. Simultaneously, previous research testing the impact of job crafting on coping efficacy (or resilience) had limitations that limited the findings' generalizability (section 5.1.4.1). Study 1's findings provide a significant contribution by showing that job crafting can positively impact the employees' coping efficacy levels.

		Future studies could further assess the impact of job crafting (and of interventions directed at increasing the latter) on employees' coping efficacy in stressful contexts (organisational change, downsizing). Based on the findings, job crafting may be a valuable tool to assist employees in difficult circumstances.
19. Employees who increase their social resources as a direct (i.e., bottom-up intervention) or indirect (i.e., top-down intervention by increasing job crafting) effect of job re-design interventions may decrease their coping efficacy consequently.	Medium	An unexcepted direct effect was the negative impact of social resources on coping efficacy. Namely, an increase in social resources (e.g., following the bottom-up intervention) led to lower coping efficacy levels in employees. This finding is not completely surprising and implies that the benefits of receiving social support, in some circumstances, do not outweigh the consequent costs (as discussed in section 5.1.4.1.). Research is needed to understand under what circumstances increasing social resources determines beneficial or adverse effects and what type of outcomes most likely follow an increase in social resources in specific contexts. Based on the findings and the arguments discussed in section 5.1.1. it would also be interesting to understand whether increasing social resources can lead simultaneously to positive (i.e., higher work engagement) and negative (i.e., lower coping efficacy) outcomes. This type of knowledge is critical to make more specific recommendations regarding the impact of job re-design interventions directed at increasing social resources in the workplace.
20. Designing or re-designing jobs to ensure a good fit between the employees' needs and abilities and their job (P-J fit) while enhancing their coping efficacy can be a direct way to enhance the workers' sense of meaning at work.	Medium	Research is needed to determine the antecedents of meaning at work (Bailey et al., 2019). The study provides a significant contribution by showing diverse direct and indirect mechanisms through which employees' sense of meaning at work can be enhanced (sections 5.1.4.1., 5.1.4.2.). Specifically, an increase in P-J fit and coping efficacy (as a direct result of a tailored intervention such as the top-down intervention or following an increase in job crafting and structural resources) can directly enhance the employees' sense of meaning at work. An interesting new avenue of research would be testing the impact of a measure that captures a broader conceptualisation of P-J fit (i.e., including personality-job fit; see also below) on employees' sense of meaning at work. As introduced in section 5.1.4.2, a conceptualisation of P-J fit that includes personality-job fit

		could show a stronger relationship between P-J fit and meaning given that a good or bad match between one's personality and the job context may impact the individual's attitudes and well-being positively or negatively. Future job re-design interventions could design the intervention programs according to such findings (e.g., include elements to enhance personality-job fit). Simultaneously, future research could assess whether employees' personality and skills impact the perceived job-fit and, in turn, meaning at work. Finally, job re-design interventions could be directly targeted at enhancing the workers' P-J fit and evaluated for their effectiveness.
21. A better P-J fit is the bridge that connects job crafting and the following enhanced job characteristics to positive outcomes, potentially by favouring self-concordant work situations for the employees. However, an improved P-J fit may not be the only mechanism through which job crafting elicits beneficial outcomes.	Medium	As theorised by previous research, the results indicate that an enhanced P-J fit represents a critical mechanism that explains why and how job crafting determines positive outcomes (section 5.1.4.2.). Nevertheless, the findings suggest that an increase in coping efficacy (and structural resources) is also critical to ensure that job crafting determines positive outcomes such as affective well-being and that the beneficial impact of job crafting on well-being may be directly mediated by coping efficacy. Based on the findings, the role of coping efficacy in the relationship between job crafting, enhanced job characteristics, and positive outcomes should be investigated further.
22. Job crafting interventions can elicit beneficial effects, regardless of national culture. The present study was the first to evaluate the effects of a job crafting intervention in the UK and determine that positive outcomes followed its implementation.	Minor	All the studies with more robust designs (except for Sakuraya et al., 2020) were implemented in the Netherlands (sections 2.2.2.1., 5.1.1.). The present study represents the first research to support the positive, long-term effect of a job crafting intervention on job satisfaction and social resources in a different country. More research in other countries is needed. Nevertheless, the intervention did not have a beneficial impact on every outcome investigated. Further research could include qualitative elements following the intervention's implementation (i.e., using a mixed-method design) to understand what facilitated or hindered participants' job crafting efforts. This type of evidence is needed to enhance job crafting interventions (i.e., include elements aimed at minimising obstacles to job crafting).

23. Employees with limited interest in the intervention and with pre-workshop intentions not to apply the training being delivered may represent an additional control group that makes it impossible to disentangle the training's effects between motivated and un-motivated participants.	Minor	As discussed in section 5.1.1.3., trainees' motivation to learn emerged as an individual factor that determines to what extent what is learned during training is transferred to the job (Blume et al., 2010). Simultaneously, implementation intentions have a major impact on subsequent outcomes, such as goal achievement (Ford et al., 2018). Future studies are encouraged to measure the interest participants have in training to control for this crucial element. Simultaneously, pre-intervention sessions to stimulate implementation intentions may be beneficial (Costantini et al., 2020) to maximize the transfer of training and the interventions' impact.
24. Participants who are unwilling to participate in the job crafting intervention (or are openly against new interventions) may influence the other participants' job crafting efforts and impact the intervention's outcomes.	Minor	Co-workers might regulate others' job crafting actions and behaviours through negative or positive responses, which can impact the willingness to craft and the outcomes of the latter for the job crafter (Tims & Parker, 2020; see also section 5.1.1.3.). Participants (notably higher status co-workers such as senior team members) who are not open to change and innovation may perceive lower status team members' proactive behaviours as violating shared and established norms and expectations. Consequently, they can negatively discourage future job crafting in other employees and/or determining adverse affective outcomes in these (cf. Tims & Parker, 2020 and section 5.1.1.3.). Some senior team members actively tried to disrupt the smooth delivery of the job crafting workshop in the present study and may have discouraged future job crafting in other workers based on their behaviours. In the implementation of job crafting interventions, it might be advisable (1) to involve a senior manager who attends the workshops. Based on the experience in Study 2, senior managers can assist workers in viewing the value of the training and behave respectfully for fellow co-workers and the researcher(s). (2) To follow-up the workshop with one-to-one interactions with the participants to assist them in identifying barriers to craft and ways to overcome them.
25. A job crafting intervention's beneficial effects may partially be explained by the	Minor	Workshops based on shared activities between workers can enhance employees' well-being via improved social environments (Daniels, Watson et al., 2017; section 5.1.1.4.).

shared activities involved in the workshops.		An exciting avenue of research would be comparing the impact of a job crafting intervention on workers' well-being (and perceived job characteristics) against the effects of an intervention based on increasing the occurrence of shared activities (while possibly evaluating the interaction between the two) on the same outcomes. These comparisons between interventions may enhance our understanding of the most beneficial and cost-effective programs to improve workers' well-being.
26. An increase in structural resources may be the most critical (behavioural) job crafting strategy to improve well-being and performance.	Minor	According to the results, structural job resources were the only job characteristics that mediated the positive relationship between job crafting and P-J fit. Namely, an increase in structural job resources partially mediated job crafting's positive effect on P-J fit. Structural resources also had a positive total or total indirect effect on every outcome under scrutiny. Thus, job crafting elicited several beneficial effects in employees by enhancing their perceived levels of structural resources. In line with previous research (e.g., Rudolph et al., 2017), the findings indicate that increasing structural resources may be the most important (behavioural) job crafting strategy to improve well-being and performance. Research is needed to confirm this conclusion. Namely, based on the present study, it cannot be established with certainty whether increasing structural resources (as a job crafting strategy) led to an increase in structural resources and, in turn, positive outcomes. Future interventions may focus on the job crafting subdimensions rather than on the job crafting scale as a whole to test this claim.
27. A broader conceptualisation of P-J fit may better capture the full amount of variation explained by job crafting, via P-J fit, on work outcomes.	Minor	As discussed in section 5.1.4.2., the lack of a positive mediated relationship between job crafting and well-being via P-J fit suggests that the scale used in the present research may have failed to account for the whole construct of P-J fit. As introduced earlier, P-J fit's concept may be broader and include aspects such as personality-job fit that are not specifically measured by Cable and DeRue's (2002) measure used in the present research. Future research might address this aspect by testing the impact of job crafting on work outcomes via P-J fit using a broader conceptualisation of the latter.

28. A model where P-J fit predicts directly and indirectly (via coping) meaning, job satisfaction, and well-being could better reflect the mechanisms through which job crafting elicits positive outcomes via an enhanced P-J fit.	Minor	The results show that the positive indirect effect of P-J fit (which was positively directly and indirectly predicted by job crafting) on well-being was better explained by an increase in coping efficacy rather than an increase in meaning. It is possible that meaning should not be seen as a mediator in the relationship between P-J fit and well-being (since it reflects a specific dimension of well-being itself) but as a distal outcome. Future research could investigate this aspect by assessing the fit of a structural model where job crafting predicts P-J fit via job characteristics and P-J fit predicts directly and indirectly (via coping) meaning, job satisfaction, and well-being.
❖ Study 2		
29. Job crafting interventions may need a tailored approach in the context of Police to avoid determining adverse consequences.	Medium	Established and formal conduct norms might be deep-rooted in Police due to its profound mission (Section 5.2.1.). According to Zhang et al. (2020), when employees engage in actions that are distinct from shared norms, routines, and codes of conducts (or that challenge the status-quo) in contexts that are not supportive for innovative or unconventional behaviours, they can experience a worsening in job characteristics such as social support. Novel ways of behaving may not be perceived positively (or may be perceived as risky inasmuch not firmly regimented) in Police and might lead to adverse consequences. It might be necessary to ensure that supervisors and supervisees formally agree on specific job crafting actions to ensure that these are safe, realistic, agreed, and authorised. Future research could test this claim and adopt a tailored approach in designing and implementing job crafting interventions in Police contexts (i.e., include both Police officers and Supervisors).

5.4. Limitations

This thesis has strengths and limitations. Self-report measures can result in common method bias (Podsakoff et al., 2012). The use of objective measures may enhance the conclusions' reliability regarding the effects of interventions (Gordon et al., 2018). The effects of the interventions were measured approximately four months after their implementation. The follow-up was longer than most previous job crafting intervention, providing an important methodological advancement on previous research (see sections 2.2.2.1., 5.1.1., 5.3. and below). Nevertheless, it was not possible to establish the short-term effects of the training or compare short-term effects with medium or long-term effects and draw more nuanced conclusions regarding the training effects over time. It was initially planned to test the interventions' effect at two points in time (three-month and nine-month follow-ups). However, this was not possible due to the organisations' demands (even T2 follow-up was in doubt for this reason). For the same reason, in both studies, the interventions could not be implemented fully because it was not possible to follow up the main workshop with the subsequent steps planned (i.e., evaluation sessions, LinkedIn groups). Therefore, even though the interventions were carefully designed, with defined program theories and standardised procedures (which can assist generalisation and replication, as well as increase the reliability of treatment implementation; Cook et al., 1990), it is not possible to determine whether the full implementation of the interventions would have had a different impact on participants. As introduced earlier (i.e., sections 3.2.1.2., 5.1.1.3.), participation in the workshops was not voluntary (surveys completion it was) as both organisations made the training a compulsory element of the employees' learning and development plan. Although this element represents a strength of the study (i.e., reducing participation and self-selection bias and enhancing the study's external validity), providing an

important methodological advancement over previous research (section 3.2.1.2.), it may also represent a limitation. As indicated by Demerouti et al. (2020), non-voluntary participation may have limited the training's effectiveness as participants may be unwilling or reluctant to participate (also refer to section 5.1.1.3.).

In Study 1, participants cluster-randomised to each experimental condition (but not to the wait-list control group) shared the same large building. Each department had different functions and was located in a different and closed area (or floor) of the building, aspects that (along with the cluster-randomisation used) minimised the likelihood of contamination between the experimental conditions (Molina & O'Shea, 2020). Nevertheless, diffusion of treatment between the experimental groups cannot be completely ruled out. Because the wait-list control group was located in a different city, diffusion of treatment between the experimental and wait-list control group was unlikely.

Preliminary analyses revealed pre-existing differences between the top-down intervention experimental group and the top-down intervention wait-list control group in the levels of challenge job demands, meaning, well-being and job satisfaction. Similarly, pre-existing differences were found between the integrated intervention experimental group and the wait-list control group in the levels of structural resources, challenge demands, and P-J fit. These findings indicate that cluster-randomisation did not guarantee entirely equivalent pre-intervention groups. Finding pre-existing differences between treatment groups is a (frequent) limitation of quasi-experimental designs, given that individual employees are not randomly allocated to intervention conditions, resulting in disparate groups (Biggs et al., 2014; Velosio-Besio et al., 2019). However, as noted by Biggs and colleagues (2014), "quasi-experimental research designs are more appropriate than true experimental designs in applied organisational research settings

(Adkins & Weiss, 2003; Brough & O'Driscoll, 2010). We also note that, even in experimental

designs that include random allocation to intervention conditions, extraneous factors of influence

can remain and equivalent preintervention groups are not guaranteed (Adkins & Weiss, 2003;

Salmela-aro, Näätänen, & Nurmi, 2004)" (p. 63). It should also be noted that controlling for

baseline differences between groups help to mitigate any baseline difference affecting Structural

Equation Modelling results. This mirrors an important methodological strength of the present

research's design compared to other quasi-experimental designs where it is impossible to control

for pre-existing differences (e.g., one-group post-test only design, a post-test only non-equivalent

groups design, the pre-test post-test single group design).

Considered the context of change under which the interventions took place, threats to

internal validity such as history and maturation (refer to Table 3 and Section 3.1.4., for a

summary of internal validity threats and a discussion on validity and reliability) could not be

completely ruled out. Nevertheless, controlling for baseline scores (i.e., broad contextual factors,

such as history, are shared amongst participants and likely affect them all), using a large sample,

and an extended follow-up (see immediately below) limits the risks to these and other internal

validity threats. As said earlier, compared to most previous job crafting interventions (Table 1), a

larger sample size was recruited (in Study 1) with a follow-up administered four months after the

intervention (not soon after as in most previous research on job crafting). These two elements are

important to minimising internal validity threats such as testing, mortality, maturation, history,

and regression to the mean. Namely, a substantial time lag between the pre-test and post-test

minimises testing threat (Laerd Dissertation, 2020; plus, the pre-test (and the post-test) were

administered to both the experimental and control groups). As the sample size increases, the

sample distribution becomes more normal regardless of what the sample data look like (e.g.,

non-normality is much less of a problem or not at all a problem with large samples; see Field,

2017). A more normal distribution means that the results are more generalisable and that validity

threats such as mortality, maturation, history, or regression to the mean are less of an issue

(particularly if the results are bootstrapped and randomisation or cluster randomisation is used)

inasmuch these factors (i.e., history, maturation, mortality) are unlikely to be reflected in one

group (e.g., experimental) and not in the other (e.g., control).

Overall, although threats to internal validity can represent a limitation in quasi-

experimental research (Cook et al., 1990; Robson & McCartan, 2015), steps were taken to

minimise these threats and to increase the reliability of the findings. (It should be noted that,

although threats to internal validity can represent a limitation in quasi-experimental research,

quasi-experiments are valuable to draw generalisable inferences in the context of applied

organisational research and may even be more appropriate in applied research contexts than true

experimental designs as noted earlier; Biggs et al., 2014). For instance, compensatory rivalry and

demoralisation were ruled out by setting wait-list control groups instead of control groups; thus,

each participant knew he/she would have taken part in the training. There was no compensation

for taking part; therefore, compensatory equalisation of treatments was further ruled out.

Furthermore, participants (in Study 1) have been given a twenty minutes (paid) slot during their

shift to complete the surveys, surveys completion was encouraged by managers and senior

managers (in both studies), and participation in the sessions was mandatory as part of the

organisation's training and development plan (in both studies). These aspects were seen as

important to minimise biases such as demand characteristics (knowing that they are in an

experimental situation, participants answer or behave as they expect they should), participant

bias (participants trying to impress the researcher or managers), or participant error (performance

in test fluctuates from occasion to occasion due to exogenous factors such as tiredness; see

Robson & McCartan, 2015). For instance, each participant (in Study 1) had the same amount of

time provided by the organisation to complete the surveys (hence, participant error is less likely

as the conditions were the same for everyone). Moreover, evidence indicates that people who

volunteer for experiments are more sensitive to biases like demand characteristics than people

required to be involved (Robson & McCartan, 2015). Accordingly, the broader pool of

participants (i.e., everyone in each department involved) and the steps taken to maximise

participation increase the reliability and external validity of the results (generalisations can be

made within the context under investigation), particularly in Study 1. It should be noted that the

findings of Study 1 did not support the hypothesised structural model in its strict full mediation

specification. However, as discussed earlier (i.e., section 4.1.1.1.), a partial mediation model was

a reasonable expectation and a plausible alternative to a full mediation model, which served well

to identify and discuss those (not strictly) anticipated mechanisms through which the

interventions (and job crafting) worked (refer to sections 4.1.1.1. and 5.1., see also Daniels et al.,

2021). Simultaneously, it is worth noting that some unknown mechanisms explained some of the

results not transmitted by job crafting, and potential candidates (e.g., enhanced psycho-social

working environment) have been discussed earlier (e.g., section 5.1.1.4.).

This said Study 2 presented unique and unplanned limitations. The initial allocation of

participants was disrupted due to unpredictable contingencies. Two of the line managers who

participated in the top-down interventions changed their roles immediately after attending the

workshop. One of them became the line manager of participants who were initially in the control

group. Great care has been taken to ensure that the analyses reflected the final state of the

interventions. Nevertheless, some participants in the job crafting experimental group have

completed the T1 survey under the supervision of a line manager and the T2 survey under the

supervision of another. A change in line manager may represent a substantial confounding

variable (Nielsen & Miraglia, 2017) and a source of unexplained variation. Disruptions were

experienced during the implementation of the interventions and data collection process. For

instance, a case of murder prevented several Police officers from taking part in their scheduled

session. Technological hindrances were experienced (i.e., due to security reasons), making it

necessary to shorten some workshops (each workshop's steps were always followed; however,

the planned breaks were shortened). The workshops for the control group were delayed by about

two months due to organisational issues. This factor caused delays in data collection and made

T2 data collection problematic. Police officers' high demands meant that repeated reminders

from senior managers were needed to encourage T2 survey completion. Despite this, only 34

participants out of 88 answered both surveys. Following the first two workshops, it was decided

that a senior manager would have attended the workshop for Police officers to assist the smooth

delivery of the training and participants' learning (section 3.3.). Finally, considering the small

sample size, the alpha level was set to $p < .10$ in Study 2 to increase the power of the tests (see

Section 4.2.2.). Accordingly, the possibility of type I errors (i.e., rejecting a correct null

hypothesis) may have increased.

This said, as underlined by Molina & O'Shea (2020), implementing workplace

interventions in a context of change, austerity, and economic recession represents a challenging

task. More research is needed to understand how interventions have their effects in a turbulent

context (Molina & O'Shea, 2020). It could be added that more research is needed to understand

what factors hinder or facilitate the implementation of interventions in changing contexts and

what steps could be taken to ensure that interventions are implemented as smoothly as possible.

In particular, the study's two results can be valuable towards these ends and share valuable lessons about implementing real-life interventions in a changing context.

In conclusion, it is worth noting that this thesis followed a 'realist-lite', pluralistic epistemological approach. The reasons for taking this philosophical stance have been discussed in Sections 3.1. to 3.1.4. It should be noted that taking a strictly positivistic approach may have broadly led to using the same analytical approach and methods. Nevertheless, as discussed earlier, positivism is no longer seen as a viable option for carrying out real-world research (Robson & McCartan, 2015; see also Byrne, 2002; Nash, 2005; Pawson, 2013) due to its apparent philosophical, ontological, and epistemological shortcomings concerning real-world research as well as its blurred areas and overlapping with other philosophies or neo-positivist movements (see section 3.1.). The methods and analytical approach used are compatible with both realist positions and a positivistic approach. Nevertheless, taking a broader philosophical stance than positivism alone was deemed necessary to overcome its philosophical limitations while broadening the interpretation and discussion of the findings using conceptual and philosophical tools of closely related philosophies (see Table 2). For example, the experience gained during the implementation process (i.e., acknowledging the wishes and anxieties shared by call centre agents) has been helpful to go beyond statistical significance in discussing the findings (e.g., Section 5.1.; practical theorising, using fieldwork notes to bridge connections between the implementation experience and other research, in line with critical realism and pragmatism).

5.5. Practical Implications

Managers are often unaware of the well-being consequences of the management practices they endorse and implement (Grant et al., 2007). Based on the present research's findings and the

top-down intervention's design, better awareness of quality management practices and their own behaviours, attitudes, and skills related to the workers' well-being and job design can be the first step to assist managers in enhancing their performance and facilitating employees' well-being. Simultaneously, empowering and assisting line managers using their best (emotional and social) competencies to enhance the workers' job design can profoundly impact the employees' perceived job quality and the workers' perceptions, actions, and feelings.

Study 1, in particular, suggests that organisations should nurture (emphasise and acknowledge the importance of) the managers' soft skills to foster a healthy, engaged, and proactive workforce. Performance reviews, development plans, promotions, and hiring strategies should, at least to some extent, focus on the managers' ability to establish relationships with team members, provide individual consideration and support, understand the worker's individual needs, traits and strengths, and empower them flourishing at work. Overall, the results suggest that the higher a line manager's social and emotional competencies, the higher the employees' proactivity at work, resilience, and well-being. More proactive employees, in turn, means more satisfied and engaged workers. Therefore, hiring or promoting emotionally skilled managers while nurturing the managers' social skills can represent critical factors to increase organisational performance and reduce absenteeism and presenteeism. Investing in leadership development training directed at the managers' social and emotional competencies can be a cost-effective way to enhance well-being at work. Towards this aim, coaching could be the ideal leadership development method to safeguard the manager's perceived status and need for autonomy, tap on their resourcefulness and strengths, and engage them in the developmental process.

Interventions directed at increasing employees' job crafting behaviours can help elicit a broad range of beneficial outcomes. However, the findings showed that leadership development was more effective at increasing employees' job crafting than training workers themselves. Interventions directed at teaching employees crafting their job may require frequent group sessions to assist workers in the job re-design process. Simultaneously, based on the concept of LMRA, it may be crucial to engage both workers' and line managers in job re-design initiatives to ensure that the workers' proactive behaviours are in line with the managers' expectations and that the employees' proactive job re-design verifies in the context of a positive social exchange with the line manager. Alternatively, job crafting interventions could elicit adverse outcomes if the workers' job crafting actions are misaligned with the managers' expectations (or verify in the context of an unfavourable social exchange). It is also important to note that in particular work contexts (i.e. Police), job crafting interventions may lead to adverse outcomes (Study 2). As discussed earlier, novel ways of behaving (i.e., self-directed job re-design) might not be perceived positively (or may be perceived as risky inasmuch not firmly regimented) and might lead to adverse consequences where established and formal norms of conduct are ingrained in the organisational culture. Simultaneously, police officers may perceive the need to receive supervisory authorisation when implementing job design changes. Overall, the results suggest that job crafting interventions need a tailored approach in Police settings to avoid adverse consequences. - (e.g., it might be necessary to ensure that supervisors and supervisees formally agree on specific job crafting actions to ensure that these are safe, realistic, agreed, and authorised).

This said, organisations and managers need to pay attention when challenging employees. Challenge stressors can be strain-provoking and lead to adverse health outcomes. Performance

reviews or supervisory meetings could help line managers understand when employees perceive

challenge stressors as motivating (and can, hence, be sustained or increased) or strain-provoking

(and should be reduced). On the other hand, investing in (and encouraging the use of) structural

resources can be an effective method to enhance the workers' P-J fit and well-being. Finally, a

good P-J fit emerged as important for workers' sense of meaning at work, coping efficacy, job

satisfaction and well-being. It seems critical for organisations to hire the right candidate for the

right job or re-design jobs to ensure a good fit between individual abilities and needs and tasks

performed. A lack of P-J fit may severely impact workers' well-being, health, and performance.

Chapter 6 Conclusions

Beneficial job re-design is a complex phenomenon involving multiple actors. Training

employees themselves re-designing their jobs' physical, relational, and cognitive boundaries may

not represent the most effective strategy to elicit positive and lasting changes in job

characteristics and employees' well-being. As expected, individual job crafting emerged as

instrumental in favouring positive individual psychosocial outcomes. Enhanced job

characteristics and P-J fit explained how job crafting leads to an enhanced sense of meaning at

work, coping efficacy, and well-being. Nevertheless, from this thesis, it emerged that whether or

not employees engage in job crafting in the first place, and sustain their job crafting efforts, is

bound to contextual, social, and organisational forces. The latter can hinder (or otherwise

facilitate) the workers' ability to re-design their jobs positively. Line managers, specifically,

emerged as pivotal to enable successful job re-design and facilitate employees' job crafting and

well-being. It is essential to understand more in-depth the relationship between team-leader and

team-member in the process of job re-design. The concept of LMRA, introduced in this thesis,

could represent the first step to broaden our understanding of the specific job re-design

phenomenon involving the employee and his/her line manager and design more effective interventions.

In conclusion, organisations would benefit from developing (or hiring) socially and emotionally competent leaders who are aware of job re-design principles and can implement this knowledge in their jobs. Developing this type of leaders could be the key to sustain a proactive, healthy, and engaged workforce, minimise presenteeism and absenteeism, and sustain organisational performance.

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Appendix

Appendix 1. *Job Crafting Intervention Workbook*

Stuart has always liked his job. However, a few months ago, at the beginning of a promotional campaign, he was struggling. He was suffering from the high workload and was feeling less motivated. He was even thinking about quitting without even knowing well why (he used to enjoy his job much). He decided to take a few days of annual leave to understand what was going on and what could be done to improve the situation.

During his days off, Stuart realised how much satisfaction he feels when helping clients to achieve their goals and improve their health. He collected all the positive feedback he had received from his clients and inserted a picture of them as an image on his desktop to remind him of how much purpose he finds from his job and how useful his job can be for others (i.e., *focusing on impact and purpose of the job*). He also realized that improving people's well-being is the most significant and important aspect of the job compared to tasks he enjoys less such as recording interactions or completing administrative duties. He acknowledged that the tasks he enjoys less are just necessary to subsequently help clients in improving their health and feel a sense of purpose (i.e., *focusing on the impact of specific tasks which are important to us*). Similarly, he acknowledged how lucky he is to have the daily opportunity of putting into practice his experience as a leader in team sports to help people in enhancing their well-being and achieving their goals (i.e., *drawing links between personal interests and certain aspects of the job*).

Nevertheless, during his annual leave, Stuart also realized that his workload was definitely too high and that certain tasks drained his energy. He decided to make some changes in the way he performed these tasks. For instance, he would have used his interest in novels to write interactions with customers more creatively (he needs to write a summary of each interaction with customers) and his experience in rugby to be more proactive in team meetings and enjoy these more (i.e., *increasing the use of strengths, interests, and motives to enjoy more certain tasks*). He would have written his reports of the interactions with clients at the end of his shift and would not have been worrying about them while coaching and training clients or designing programs (i.e., *job crafting by re-organizing certain tasks to better cope with them and align them to our abilities and needs*).

Considering the satisfaction Stuart gained by helping others, he decided to design and start a three months weight-loss programme in which clients could receive theoretical and practical tips to reduce weight and improve health (i.e., *adding challenges that reflect abilities and interests*). This would have allowed him to spend more time with clients that needed his help and from whom he gains so much satisfaction and purpose (i.e., *re-defining relationships to find more purpose*). Finally, he decided to speak to the centre's manager (i.e., *increasing the use of resources*) and address the issue of his high workload, particularly during promotional campaigns. The manager acknowledged the issue and recruited another member of staff to help Stuart during busy times. Stuart is now happier and more engaged at work and regrets having even thought to leave his job.

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Discussion

In light of the knowledge gained about job crafting and the examples provided above, reflect on your work experience and identify when you engaged (or engage) in job crafting. Identify specific job crafting actions or behaviours that you have taken to solve issues or achieve positive outcomes at work. Share with your colleague and write some notes if you want.

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Step 2: Person Analysis

…We all have unique strengths and interests that we can use to improve our job…

To improve the quality of work and our well-being, we want to make changes to our jobs that are in line with who we are, and that reflect our abilities and interests!

- **Making changes to our job to better align this with our abilities and interests can help us be more motivated and productive…**

1. Increasing the *use of our strengths* at work can be a powerful way to stay motivated, energized, and perform better.

| How can we recognize a strength? | We feel a sense of ownership and authenticity when using it. | We experience excitement while displaying it (particularly for the first time). | We have a wish to find new ways of using it. | Enthusiasm, joy, zest while using it. | E.g., Leadership, emotional intelligence, love for learning, kindness and generosity, hope, humour, spirituality, self-control, fairness, perseverance, valour, curiosity. |
| | We learn fast when using a strength for the first times. | Our personal projects revolve around it. | We feel strong, "unstoppable" ("try to stop me") when using a strength. | We experience invigoration rather than exhaustion while using a strength. | |

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2. Finding ways to align our jobs to our *interests* and *motives* can help us find a higher sense of purpose *in what we do*.

| What can we consider an interest? | Activity and topic that spark deep interest. | Attracts your attention. | What can we consider a motive? | Something (an outcome) that that you value and for which you are willing and motivated to put efforts and persistence. |
| | You want to be involved in it and discover more about it. | E.g., using technology, teaching, | | E.g., friendship, enjoyment, personal growth, help other people, religion. |

Exercise

- **Let's reflect on our strengths and interests in preparation of the following steps.**

If you have completed the Values in Action Inventory of Character Strengths (VIA) before the training record your top-five strengths on the table below. **If you have not completed** the VIA think about your top-strengths (e.g., leadership, emotional intelligence, love for learning, kindness, generosity) and record them in the order of importance.

To help you in this, think of a time when you were feeling **at your best** (e.g., while playing a sport, giving a presentation) and write down all the strengths you were showing in that occasion. Record also your three to five main interests (e.g., using technology, teaching, sports), and motives (things that you value; e.g., friendship, personal growth).

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YOU

Strengths
1.   4.
2.   5.
3.

Motives
1.   4.
2.   5.
3.

Interests
1.   4.
2.   5.
3.

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Before we move on…Let's reflect on how we are part of a wider team and on how our jobs are related to our colleagues' job. Today we will plan specific job crafting actions (refer to the introduction for a re-cap about job crafting) to improve the quality of our job. However, we want to make sure that any action we take does not affect our colleagues or the organization.

➢ Following the discussion with your colleagues about organizational and team achievements and sources of pride and about how your own job is (or can be) connected to others' jobs…write some notes on how your job is connected to your colleagues' jobs and reflect on which changes to your job would be harmful to your colleagues.

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Step 3: Job Analysis

To get to our destination, we need a map!

To determine what actions to take to improve the quality of our job, and where, in our job, we can increase the use of our strengths and interests, we need a clear map of our job which allows us to identify:

What can be changed.

We need to be realistic and make changes according to the requirements of our jobs. *We do have tasks to accomplish. It is how or when we accomplish our duties that can help us to improve our jobs.*

How (and where) are we investing our energies and how could we use our energy better.

We might not realize it, but we might be using our energies unproductively (i.e., forcing ourselves to answer email as soon as we receive them, and lose focus on other tasks).

Where (i.e., in which tasks, actions, behaviours) **we can increase the use of our abilities and interests.**

What resources can we use to improve our job.

We may not always realize it; but we might have useful resources available that we are not using or not using properly (e.g., to improve the quality of our jobs).

Importantly, **in which part of our job change would be most beneficial for us.**

Making changes in tasks we rarely do might not have a substantial impact on the quality of our jobs.

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Exercise: The Job Analysis Map (4 steps to map our job).

This exercise aims to:

➢ Help you in identifying which resources are available at work for you to improve the quality of your job and increase the use of your strengths and interests. As we have seen, resources are aspects of the job that can assist you to develop useful skills (e.g., coaching from manager, training), cope better with stressful tasks or periods (support from manager or colleagues), and achieve your goals.

➢ Assist you in developing a clear map of the tasks, behaviours, and actions you perform at work. Tasks, behaviours, and actions can be seen as **flexible building blocks** that we can move and change to improve the quality of our job and to align our job with our abilities and interests. For example, we could spend more time in a task which motivates us and re-organize a task which stresses us to increase the use of our strengths or interests while accomplishing it.

➢ Identify which building block you perceive as challenging or stressful (we aim to increase our challenges and identify ways to cope better with sources of stress). (Remember: a challenge is something that motivates you even if it requires hard work).

➢ Stimulate your reflection on the elements of your job which have the greatest significance for you. That is, reflect on the elements that you consider to be important, have a positive for impact on you and others, and reflect your values.

Please follow the instructions below for each step (and use the template provided) to create your job analysis map!
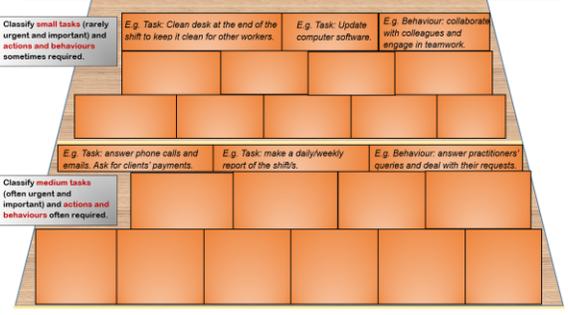
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1. **List your personal, social, and job resources.** Write your resources in the blocks below. Resources can be **personal** such as strengths or particular traits (e.g., optimism, self-esteem, organization skills, resilience), **social** (e.g., support or feedback from supervisors/colleagues), or **job resources** (i.e., provided by the organization, such as job autonomy, flexible working, training opportunities, gym membership, software, etc.). For instance, your optimism can be important to stay motivated at work and pursue a promotion. Your supervisor can be an important source of feedback and motivation and can be pivotal to assist you in solving issues at work or achieving certain goals (e.g., a promotion). Job resources can be potentially important to perform better your job, to develop skills you need or to feel more energized at work. Please list your resources below **so you can return to them when designing a plan to improve the quality of your job.**
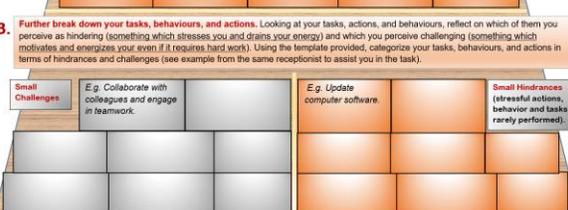
Personal Resources

E.g., Optimism.

Social Resources

E.g., coaching from manager.

E.g., flexible working.

Job Resources

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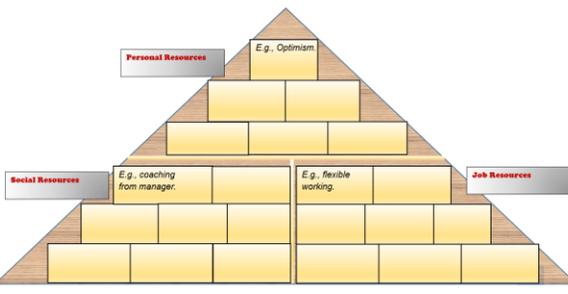
2. **Break down your tasks and the actions and behaviours required at work.** Using the template provided, summarize the tasks required by your job and classify them as small, medium, and large in terms of urgency and importance (i.e., a large task is something that you do regularly and that is important to accomplish your job). **At the same time,** consider and summarize also the behaviours and actions required at work according to their importance and regularity. For us to accomplish our tasks and meet our responsibilities, our job requires actions and behaviours which are more or less regular, urgent and delicate. (**See in the template some examples of tasks, actions, and behaviours required by a clinic receptionist**).
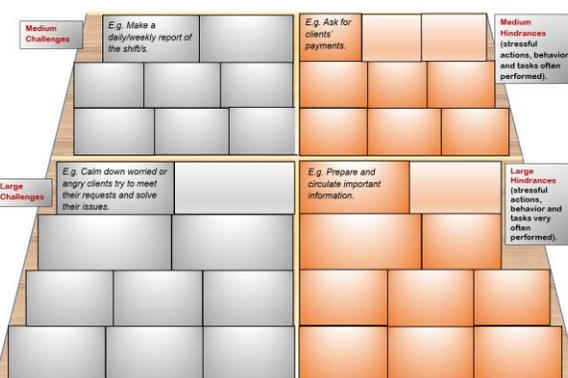
Classify small tasks (rarely urgent and important) and actions and behaviours sometimes required.

E.g. Task: Clean desk at the end of the shift to keep it clean for other workers.

E.g. Task: Update computer software.

E.g. Behaviour: collaborate with colleagues and engage in teamwork.

E.g. Task: answer phone calls and emails. Ask for clients' payments.

E.g. Task: make a daily/weekly report of the shift/s.

E.g. Behaviour: answer practitioners' queries and deal with their requests.

Classify medium tasks (often urgent and important) and actions and behaviours often required.

Classify large tasks (urgent and important) and main actions and behaviours required.

E.g. Task: add or remove appointments and write some notes about these.

E.g. Behaviour: calm down worried or angry clients, try to meet their requests, solve their issues.

E.g. Task: prepare circulate important information.

E.g. Task: assist walk-in customers.

3. **Further break down your tasks, behaviours, and actions.** Looking at your tasks, actions, and behaviours, reflect on which of them you perceive as hindering (something which stresses you and drains your energy) and which you perceive challenging (something which motivates and energizes your even if it requires hard work). Using the template provided, categorize your tasks, behaviours, and actions in terms of hindrances and challenges (see example from the same receptionist to assist you in the task).

Small Challenges

E.g. Collaborate with colleagues and engage in teamwork.

E.g. Update computer software.

Small Hindrances (stressful actions, behavior and tasks rarely performed).

Medium Challenges

E.g. Make a daily/weekly report of the shift/s.

E.g. Ask for clients' payments.

Medium Hindrances (stressful actions, behavior and tasks often performed).

Large Challenges

E.g. Calm down worried or angry clients try to meet their requests and solve their issues.

E.g. Prepare and circulate important information.

Large Hindrances (stressful actions, behavior and tasks very often performed).

Finally: Develop a Personal Work Statement

4. Develop a personal work statement to have a clear idea of the aspects of your job that give you a sense of purpose.
Please answer the following questions. Write fast, don't worry about spelling, grammar, or logic. The objective is to let your thoughts flow.
When you are done, go back and edit this to create your own personal work mission statement:

- What is it that you believe you do that makes a difference to other people?
- Why do you do what you do?
- What is it that you believe you do that makes a difference to customers and/or colleagues at your workplace?
- In what way is your work important to help the organization achieve its goals?
- Why do you do what you do in your workplace?
- Consider again the strengths that you put into action while doing what you do.

After answering these questions, please develop your personal work mission statement. It can be as short or as long as you want. For example, Police Officer: "To help people understand lawfulness and to provide them security in their neighbourhood communities." Clothing Salesperson: "To help people look and feel their best." Call Centre Employee: "To help people worry less by having their issues solved and their queries addressed." Please write the final version of your personal work statement on a sticky label and stick it on the space provided below.

Personal Work Statement

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Step 4: Job Plus Person Analysis
Let's match our abilities, preferences, and needs to our job.

In this step, we will reflect on (and integrate) the elements emerged from the previous two steps to identify how we can re-shape our jobs and better match our tasks and responsibilities at work to our strengths, interests, and needs.

- To improve the match between our abilities, preferences, needs, and our jobs we want to:

➢ Increase the use of our strengths, interests, and motives where we can use them and where are already using them to a certain extent (e.g., purposefully use one's coaching skills to understand customers' needs and solve their issues quickly).

➢ Identify ways to start using our abilities and interests where we are currently not, particularly to cope better with those tasks and actions which we find stressful (e.g., purposefully use one's emotional intelligence and empathy to establish quality relationships and enjoy teamwork more).

➢ Where possible, organize our tasks differently to meet our needs and use our abilities (e.g., set a specific time to answer emails not to worry about them until then and while doing other important tasks). At the same time, we can emphasize (spend more time, energy, and attention) the tasks which we give us a sense of purpose.

➢ Add new (challenging) tasks boxes which, reflecting our abilities and interests, help to keep us motivated and energized (e.g., take the leader's role in a new project to use one's leadership skills)

➢ Increase the use of the resources available to match better our jobs to our strengths and interests (e.g., use a particular training to use even better our strengths) as well as meet particular needs (e.g., use supervisory support to address an ongoing issue).

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Exercise: Job Plus Person Analysis

1. Some reflection first
Please copy the table with your strengths, motives, and interests on the paper provided and keep it next to your job analysis map. Consider:

✓ In which tasks, actions, and behaviours can you use your strengths?

✓ Which tasks, actions, and behaviours reflect your interests and motives?

✓ How can you make even better use of your strengths and motives in these tasks?

✓ Which tasks give you a sense of purpose and can you emphasize (spend more time, energy, and attention) without affecting other vital tasks?

Reflect on these questions for a few minutes and then mark the tasks which reflect (and in which can use) your strengths, motives, and interests with the letters S, M, I (i.e., strengths, motives, and interests) respectively.

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2. Work in pairs and write some thoughts. Working in pairs, help each other answer and reflect on the following questions (see examples to assist you in this task). After, please take a few minutes to briefly write what you answered to your colleague and any reflection which followed the discussion.

➢ Looking at those tasks in which you can use your strengths, how can you make even better use of your strengths in these tasks?	E.g., "I can focus on active listening while handling customers calls and use my coaching skills to understand their needs and solve the issue efficiently".

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➢ How could you use your strengths, motives, and interests in those tasks where you are not using them? (In particular, focus on how you can use your abilities and interests to cope better with those tasks and actions which you find stressful).	E.g., "I can use my emotional intelligence to establish quality relationships with my colleagues and enjoy teamwork more."
➢ Which tasks (and behaviours) can you modify or re-organize (and how) to better reflect your strengths, motives, and interests and meet your needs?	E.g., (1) "I will set a specific time to answer emails not to worry about them while doing other important tasks which I enjoy (e.g., helping clients/ writing reports)". (2) "I can re-organize specific tasks to make these less stressful and better match these to my preferences/needs. For instance, instead of trying to manage as many calls as possible by quickly (and more poorly) addressing customers' needs, I will provide quality service by addressing more thoroughly each call even if this means taking fewer calls (but it will mean solving more issues by enhancing quality)."

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➢ What new tasks boxes (challenges) could you add to your jobs according to your strengths, motives, and interests?	E.g. (1) "I can help my colleague who is struggling to write reports and use my passion for writing and for helping others to establish a better relationship with him." (2) "I can take the leader's role in a new project and practice my leadership skills to grow in my job."

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➢ Which tasks give you a sense of purpose and can you emphasize (spend more time, energy, and attention) without affecting other important tasks?

E.g., "I can spend a few minutes while training clients to educate them on healthy dietary practices to help them be healthier and to feel a sense of purpose by helping others improve their well-being."

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➢ What resources can you use or increase to better match your work with your strengths, motives, and interests, and meet your needs?

E.g., (1) "I can ask my manager for feedback about the project I have designed to improve my organization and planning skills (my strengths)." (2) "I will reach out my best colleagues when feeling under stress and ask their support or just have a chat with them to regain energy."

➢ Further reflection following the discussion with you colleagues?

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Step 5: Personal Job Crafting Plan

Let's take stock and plan a better job with job crafting

In this final step, we will take stock of previous steps and use the tools and experience developed to draw a job crafting plan. We want to develop a job crafting plan to foster the experience of positive emotions at work by enhancing the fit between our abilities, interests, preferences, needs, and our job.

Last Exercise: Develop a personal job crafting plan

➢ Using the job analysis map and reflecting on what you answered in the job plus person analysis, set one realistic goal for each of following the five outcomes to pursue **over the next four weeks**. Consider and possibly list which resources and strengths you will use (or can assist you) to put the plan into action.

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Outcome	Example of job crafting goals	Realistic goal (If you can, after each goal list the strengths and resources you will use to pursue it).
Increase challenging tasks (i.e., add new challenging building blocks that best reflects your strengths, motives, and interests. If you want, in your own time, set a separate plan (and specific actions) to increase the use of your strengths, interests, and motives where you are already using them (refer to what you answered in step 3: job plus person analysis). Also, consider how to emphasize (spend more time, energy, and attention) those tasks which give you a sense of purpose.	(1) "This week I will start approaching third-party contacts to try and better manage these, put into practice my people skills, and to build my negotiation skills." (2) "Next week, I will ask my manager to handle difficult cases, and practice my persuasion and negotiation skills to solve these cases quickly." (3) "I will decrease the time needed to solve customers' issue by using my strength of emotional intelligence to build a relationship with them and establish trust (i.e., by asking some quick questions as they phone) and in this way also satisfy my curiosity and interest for other people". (4) "I can take the leader's role in a new project and practice my leadership skills to grow in my job".	

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Modify (or re-organize) the way of working on stressful tasks (hindrances) to cope better with them (e.g., learn new skills or change the way of performing the tasks to reflect your strengths, interests, and preferences better). OR **Use specific resources** to better deal with them.	(1) "I will set one hour per day to answer the emails, and I will not check them until then so that I do not worry about new emails while doing other important tasks." (2) "From next week, I will write my papers more creatively to enjoy more this task and reflect, in this way, my passion for literature." (3) "I will focus on active listening while handling difficult customers' calls and use my coaching skills to solve their issues quickly." (4) "I will reach out my best colleagues when feeling under stress and ask their support or just have a chat with them to regain energy". (5) "I will practice a breathing exercise when feeling under stress or dealing with aggressive customers." (6) "I can re-organize specific tasks to make these less stressful and better match these to my preferences/needs." (7) "I will use my emotional intelligence to establish quality relationships with my colleagues and enjoy teamwork more." (8) "I will use my passion for learning to read new books to improve my resilience and handle a large number of calls better."	

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Cultivate positive relationships on the job according to our interests, preferences, values, and needs. **We can:** • Build new relationships • Re-define existing relationship. (E.g., spend more time with favourite colleagues; interact differently with service recipients; see examples on right column). • Adapt relationships. (I.e., provide to others valuable support or help to establish deeper relationships).	(1) "I will increase interactions with people of other departments to expand my social network at work and establish high-quality connections that can also be valuable to perform better my job or to receive (and give) help on specific issues." (2) "Next week, I will ask new workers if I can be of any help with useful tips and practice my mentoring skills." (3) "I will ask my colleagues who is willing to set weekly peer coaching sessions to receive mutual feedback and help each other's growth." (4) "I will identify people with similar interests and spend the lunch with them once a week." (5) "I will spend my breaks with my favourite colleague twice a week and I will ask him for some advice on how to better manage the relationship with my manager". (6) "I will increase interactions with patients and their families and, care for, and provide them comfort to find more purpose in my job." (7) "I will help my colleague in her new project to establish a deeper relationship with her."	

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Appendix 2. *Management development workbook*

Slide 1

- **1.2. Today's Plans and Objectives:**

✓ **Our plans:**

We aim to investigate **with you** how existing evidence can be applied **in your work context, and according to your needs and strengths** to:
✓ Enhance the quality of employees' jobs
✓ Enhance the relationships between team leader and team members
✓ Enhance the social and emotional support available for employees
✓ Improve employees' well-being, work engagement, and performance
✓ Improve **your job satisfaction** through working with more engaged and enthusiastic team members

✓ **Our objectives:**

➤ Present some key facts that can assist you in improving employees' jobs and well-being.
➤ Facilitate the process of learning, **not directing it.**

Overall, we will present some facts and aim to encourage your reflection through coaching-based exercises and questions. You decide, on the basis of your strengths and needs, how to best act on these facts to improve things or address any issue at work.

Your Objectives for today?

➤ Please take some time to think of what the best use of this time would be. **Answer the five questions below.** Please write the answers as we will return to these at the end to re-analyse them in light of the experience gained during the training.

"The process of setting goals directs our attention and energizes us!"

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Slide 2

Think of your work and your relationship with employees…

➤ **What is working best in your relationship with them?**

➤ **What is not working so well?**

➤ **Can you briefly describe any issue/s and explain how this is affecting you and them (or some in particular)?**

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➤ Ideally, what would need to change to solve the issue/s? (please consider also how your own behavior could change to address the issue/s).

➤ What would you like to change, learn, understand, improve by the end of this training? (even small changes can make a big difference!)

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- **1.3. Some thought-provoking evidence: Quality jobs and supportive managers to promote well-being.**

➤ **1.3.1. Quality Jobs**

What makes a good job?

"Work can be **shaped** to make jobs more **motivating, purposeful, and meaningful…That is,** we can take specific actions to **shape** the workers' jobs according to **certain features** (i.e., take actions to ensure that jobs do have these features) that can increase their job satisfaction and well-being" …

✓ The features of quality jobs (in red those features that managers can influence more easily). While reading them, consider what could you change in your workplace to ensure these features are in place.

Reasonable work demands and working hours.	**Autonomy and control over daily work decisions.**	**Use of skills.** (Employees use a variety of skills at work).	Job security
Positive relationships and effective communication with managers.	**Access to development opportunities.**	**Variety in tasks.** (Employees have different tasks to perform or change the type of tasks they perform regularly).	Structural empowerment (policies and practices that allow employees to make beneficial changes to their jobs.
Support from managers (i.e., feedback, emotional support) and colleagues.	**Psychological empowerment** (Individuals feel competent and appreciated).	**Input into decisions that affect how, when, and what work is accomplished.**	Fair performance management and reward systems.

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What Makes a Good Job? The following key elements enhance workers' work engagement, job satisfaction, performance, and well-being:

1. Providing employees with more **resources** (i.e., aspects of the job, like the features we have just seen, that can assist them in developing useful skills, facing better difficulties at work, and achieving their goals) such as more **autonomy in their jobs, support from managers** or colleagues, and access to development **opportunities**. And…
2. Assisting them in **reducing or better coping with their demands and sources of stress.**

✓ We also know that training (and supporting) employees in making positive changes in their own jobs (we call it **job crafting**) can enhance their work engagement, well-being, and performance.

Job crafting: Training (and supporting) workers to make changes themselves to their jobs to improve the quality of work. Employees can (well not only employees, but we all can also craft our jobs!):

- Reduce their demands when these are becoming overwhelming or seek support from supervisors to address the issue.
- Re-organize how they perform certain tasks to increase the use of their abilities (e.g., use their interpersonal skills when facing angry customers) or meet their needs (e.g., set a specific time to answer emails not to worry about emails while performing other tasks), and therefore improve the fit between their abilities and needs and their jobs.
- Increase the use of the psychological resources available at work (e.g., ask feedback or coaching to supervisors, attend training opportunities) to achieve valuable outcomes such as a promotion or to cope better with sources of stress.
- Increase the number of challenges at work to stay motivated and engaged.
- Modify the type of relationships they cultivate at work (e.g., spend more time with supporting colleagues, increase interactions with patients/clients) to find more purpose in their job.
- Focus on the positive aspects of their job (e.g., remind themselves of the positive impact of their job for themselves and others and of the value of specific tasks which they enjoy compared to tasks they enjoy less).

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➤ **1.3.2. Supportive managers**

What makes a quality job supportive manager?

✓ The impact of managers' behaviours and attitudes on workers' jobs, feelings, and actions. (Reflect on what can you change in your behaviour to enhance the quality workers' jobs.)

A quality job is not enough to promote job satisfaction and work engagement in employees. Managers' actions and attitudes can have a direct impact on the workers' emotions, behaviours, and goals. Consequently, managers can determine whether or not employees feel to have a good job and can influence workers' well-being. Making tailored changes in your behaviour to show that your care of employees and support the features that make quality jobs can make a big difference in workers' job satisfaction, well-being, and job performance.

➤ The extent to which managers show, through their behaviours and manners, that they support (or reject) the features that make high quality jobs (e.g., provide positive feedback when employees use autonomy and take independent decisions or choices) can determine whether or not workers perceive that these features are in place and benefit from them.
  - For instance: a worker might not take control of her daily tasks and change when she accomplishes her duties to meet her needs and use her abilities if she perceives that the manager does not accept autonomous decisions and choices.

➤ Certain attitudes in managers (i.e., monitoring behaviours) influence workers' behaviours and actions in positive or negative ways.
  - For instance: employees might refrain from taking beneficial steps to improve their jobs (organize their tasks differently to meet their needs and enhance productivity) if they feel that managers would not accept the changes or demand a prescribed way to perform the job.

➤ Good relationships with supervisors improve employees' job satisfaction, work engagement, commitment, performance, and well-being.

➤ Effective communication, individual consideration, coaching, and feedback from line managers (i.e. supervisory support) are essential for employees' work engagement and well-being and might influence whether or not they perceive to have a quality job. In fact:
  - Employees are increasingly in need of emotional support from their line managers.
  - The quality of supervisory support influences their emotions and behaviours (i.e. coping with adversity, achieving goals, job satisfaction).
  - Ultimately, good support from supervisor improves the perceived quality of the jobs in workers.

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What makes a quality job supportive manager? Take home message:

Managers' behaviours and manners can trigger specific emotional reactions in employees. Showing to employees that you care of (and support) the features that make good jobs, while providing them with quality supervisory support (i.e., convey positive regard and trust, provide emotional support, etc.) can have a direct impact on their perceived quality of the job as well as well-being and performance.

1.4. Peer Discussion: Please write below any reflection following the chat with your colleague.

- To what extent are the features that make quality jobs established in your workplace?

- What, if anything, is hindering their application?

- How could the application of these features be improved?

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Step 2: Coaching Skills and Good Jobs

Using evidence and our coaching skills to improve workers' jobs.

Our recipe for better jobs, relationships, and well-being: Purposefully use the knowledge of the features that make quality jobs and one's coaching and interpersonal skills with the aim of achieving valuable goals (e.g., convey positive regard and motivation to employees, provide them more autonomy).

2.1 Coaching Skills and Managers' Behaviours to Improve Workers' Jobs

In the introduction, we saw what features could be put in place to improve the quality of employees' jobs and the workers' well-being. We also saw what impact managers' behaviours could have on employees, and in what way managers can enhance (or hinder) the application of the features making quality jobs, the level of emotional support available for workers, and their well-being. Let's consider now what coaching skills and interpersonal strengths we can purposefully use to put into practice the information we gained and improve the workers' jobs and well-being.

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Coaching skills and positive managers behaviours.

Coaching Skills	Example of manager behaviour
Motivational Expressiveness	Inspiring and motivating employees. Transmit motivation and regard. For example, being able to transmit enthusiasm, optimism, positive regard. Share a compelling vision of the future.
Emotional Control	Regulating and masking the expression of negative, inappropriate, or strong emotions (e.g., masking anger when this might lead to a negative outcome such as de-motivating a worker who made a mistake accidentally).
Relational Sensitivity	Establish and maintain relationships. Understanding employees' feelings, needs, and non-verbal behavior and request (i.e., understand what employees are signaling but not saying. An employee might show signs of tiredness when he arrives at work, indicating that he is having personal issues).
Verbal Expressiveness	Coaching, mentoring, public speaking, and persuasion. Engage and involve others in communication, saying the right thing, being clear, and ask thought-provoking questions that facilitate learning and growth.
Social Sensitivity	Active listening (being fully focused in a conversation), present oneself in an appropriate manner according to the social context (e.g., being able to regulate and monitor one's behaviour according to situations and people). Being able to understand social norms, situations, and roles.
Behavioural Control	Being sensitive and tactful. Have, develop, and convey confidence as a leader and in social contexts. Role playing and leader impression management.

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2.1. Reflective exercise: Let's reflect on your own coaching skills in relation to your relationship with employees and their jobs.

- **Part 1: Some reflection**
- On the basis of the table on the previous page, please take some time to think about your own coaching skills concerning your relationship with employees and their jobs. Reflect on the following questions (if you wish, write some brief notes while reflecting on them):

- Which skills do you consider to be your strengths?

- Which are weaknesses?

- What skills are you using, overusing or underusing, and how are you using them?

- When, in your experience, the use of specific coaching skills led to positive (or negative) outcomes such as to improvements of workers' jobs?

- What coaching skills are most useful according to your role and team?

- Which skills, behaviours, and attitudes are most useful to improve the quality of workers' jobs and the quality of support you provide to them?

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- **Part 2: Narrative Coaching**

Write as many stories or examples you can think of when the use of the interpersonal/coaching skills we have seen (table p. 11) was useful to improve the quality of employees' jobs, your relationship with them, and the support you provided to them. Please consider the following examples to guide you in this task. If you cannot recall any instance when you used these skills, please invent a story in which certain interpersonal skill lead to a positive outcome as the ones mentioned earlier.

Example 1: "I was very upset and angry because of the mistake John made. But I realised that he is having personal issues and that he was extremely sorry about the mistake (i.e. relational sensitivity) and that shouting at him would have been only counter-productive and undermined our relationship (i.e. relational sensitivity). So, I masked my disappointment (i.e. emotional control) and asked him how I could help him not repeating the same mistake again and what would need to happen for that mistake not to be repeated in a very calm and supportive way (i.e. use of coaching/mentoring; verbal expressiveness and motivational expressiveness). He was surprised by my reaction, and I could feel true empathy between us (i.e. relational sensitivity). He never made the same mistake again").

Example 2: "I realized that the team was de-motivated and that many employees had been having a bad mood (i.e. relational sensitivity). So, I decided to hold several meetings to understand the root of the problem. I took a "coaching approach" during the meetings (asking questions to encourage reflection and listening more than speaking; behavioural control, verbal expressiveness) and made sure to show my deep interest in knowing and addressing any issue (i.e. social sensitiveness, motivational expressivity, and behavioural control). I had to mask my disappointment when some of them criticized my decisions (i.e. emotional control). But I knew that if I showed my displeasure, they would not have shared their real thoughts (i.e. relational sensitiveness and social sensitiveness). I had to step up and act as a leader sometimes though, to ensure the discussions were productive and directed towards clear and realistic solutions (i.e. social sensitiveness, behavioural control) while of course ensure they felt listened, included and motivated (i.e. motivational expressiveness). Overall, the meetings were very beneficial to improve the mood of the team and discover and address several issues I was not aware of".

Example 3: I was coaching John, an employee who is struggling to perform. He was un-coachable, however, refusing to make eye contact and answering my question lazily. I realized that my attitude during the meeting wasn't working. So, I changed my behaviour (i.e. behavioural control), sat straight on the chair and said, "I am willing to address any issue you might have, but I need to know the

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issue to do something". The change in attitude worked. He seemed surprised at first, but then he realized that he had the opportunity to address his issues and that his behaviour was not useful. He shared the problems he was experiencing, and I was able to take actions to help him.

Your stories:

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Step 3:

Let's consider how to put knowledge into practice

Which are our best coaching skills? Which are the most useful? Which skills shall we put into practice to enhance the workers' jobs? And how?
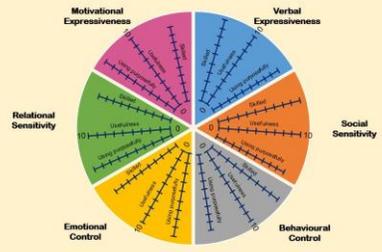
The Coaching Wheel Exercise

Let's see what coaching skills we can put into practice to enhance the quality of support we provide to workers, the quality of workers' jobs, and their well-being. This exercise seeks to assist you in identifying:

- Which are your best interpersonal and coaching skills?
- Which skills are most useful towards the aims of this training (i.e., improve employees' jobs and well-being)?
- To what extent you are using your best skills purposefully (e.g., I can perceive myself to be skilled at conveying positive regard and affect but might realise that I am not using this skill to motivate the workers)?
- How can you purposefully put into practice your best coaching skills to achieve positive outcomes? (e.g., improve relationships, motivate certain employees)?
- What can you do (i.e., study, reflection, practice) to become more skilled in those skills which you consider useful but do not excel?

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➢ **Part 1: The coaching wheel.** Consider the centre of the wheel below as a score of '0' and the outer rim as a score of '10'. Place three marks in the segment associated with each coaching skill indicating (a) to what extent you are skilled at that coaching skill. (b) How much scope there is for using that skills in your job (or how useful is that skills towards the achievement of the training's aims). (c) How far are you using that skill in your job in a purposeful manner (for instance if you are skilled in motivational expressiveness, are you using this skill to motivating or inspiring followers)? *Please find on the following page the coaching skills table we saw earlier to assist you in this task.*

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🔍 **Coaching skills and positive managers behaviours.**

Coaching Skills	Example of manager behaviour
Motivational Expressiveness	Inspiring and motivating employees. Transmit motivation and regard. For example, being able to transmit enthusiasm, optimism, positive regard. Share a compelling vision of the future.
Emotional Control	Regulating and masking the expression of negative, inappropriate, or strong emotions (e.g., masking anger when this might lead to a negative outcome such as de-motivating a worker who made a mistake accidentally).
Relational Sensitivity	Establish and maintain relationships. Understanding employees' feelings, needs, and non-verbal behavior and request (i.e., understand what employees are signaling but not saying. An employee might show signs of tiredness when he arrives at work, indicating that he is having personal issues).
Verbal Expressiveness	Coaching, mentoring, public speaking, and persuasion. Engage and involve others in communication, saying the right thing, being clear, and ask thought-provoking questions that facilitate learning and growth.
Social Sensitivity	Active listening (being fully focused in a conversation), present oneself in an appropriate manner according to the social context (e.g., being able to regulate and monitor one's behaviour according to situations and people). Being able to understand social norms, situations, and roles.
Behavioural Control	Being sensitive and tactful. Have, develop, and convey confidence as a leader and in social contexts. Role playing and leader impression management.

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➢ **Part 2. Reflection on the coaching wheel exercise and 1to1 coaching:** Working in pairs, in 10 - 15 minutes (5 - 7 minutes each) coach each other to identify how the identified gaps can be narrowed. Help each other reflect on the question below:
- Reflect on those coaching skills you are good at but not using in a purposeful manner. What behaviours and actions do you think will maximize the effect of these skills on the relationship with employees? (e.g., team meetings to motivate the team).
- What can you do (i.e., study, reflection, practice) to become more skilled in those skills which you consider useful but do not excel? For instance, what can you do to become more skilled in emotional control (i.e., regulating inappropriate emotions or stifling the expression of these)?

➢ **Part 3: actions.** Following the peer coaching please develop a set of specific weekly actions to close the gaps identified in the social wheel exercise, to increase the use of your best skills as well as to use your coaching skills to achieve specific outcomes (within the overall aim of the training).

Action 1:

Action 2:

Example of possible activity: "This week I will set two one-to-one meetings with the workers who are struggling with performance and use and practice my relational sensitivity (understand others' feelings and needs) by providing them coaching and focus on active listening with the aim of understanding what is not working for them and how can I help them (and thus improve our relationship)".

Action 3:

Action 4:

➢ Please remember to review the list each week and identify new actions to close the identified gaps. The long-term goal is to maximize the use of the most useful and best skills to obtain specific and favourable outcomes.

Action 5:

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Step 4:

New Plans

TIME TO PLAN

Let's develop a general plan to improve workers' jobs (and consequently yours), well-being, and enhance the level of support available for them.

Last Exercise: 7 steps to envision and plan new possibilities

- **Step 1:**
➢ Return to the questions we asked at the beginning:

"Think of your work and your relationship with employees. What is working best in your relationship with them? What is not working so well? Can you briefly describe any issue/s and explain how this is affecting you and them (or some in particular)? Ideally, what would need to change to solve the issue/s? (please consider also how your own behaviour could change to address the issue/s)."

Would you like to add anything to the answers provided there?

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➢ Identify what are the issues, if any, in your team or with some employees, and what would need to change to solve them.

List the main issues with the most pressing ones on the top of the list and write some thoughts on what would need to change to solve them.

I.

II.

III.

(More space over the next page)

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IV.

V.

- **Step 2:**
➢ Consider how could you enhance what is already working?

→ Write some thoughts on what is already working and what could be done to enhance it further.

Step 3:
➢ Think of how you can use the information gained today (i.e., knowledge of the features of quality jobs) in identifying actions to solve issues or improve things (steps 1 and 2). For instance, you might consider how to reduce the workload of those team members who are struggling with performance and motivation or identify how you can help them using a variety of skills at work.

Step 4:   List some goals:
➢ Reflect on what other goals can you set to improve the quality of supervisory support available for employees and enhance the quality of their jobs. For example, we have seen that autonomy and control over daily work decisions are important for employees' work engagement and well-being. A possible goal could be to provide more autonomy to team members to boost their motivation.

I.

II.

III.

IV.

V.

Step 5:
➢ Draw a picture of the ideal outcome: Imagine the problems being solved, the new goals being achieved.

→ What's standing in the way of the realised outcomes? What do you see, hear, and feel? What has changed in your behaviour, in the workplace, and your team? (We can draw some pictures of the achieved outcomes).

Step 6:
➢ List what actions have you taken to be there.

I.

II.

III.

IV.

V.

- **Step 7:**
➢ **SMART goals planning.**
- Go through the previous steps and read what you wrote.
- On the basis of prior steps, use the table below to set a **final plan** to achieve short, medium- and long-term plans to address any issue in your relationship with employees (or some in particular), enhance what is already working, and enhance the quality of their jobs (and yours).

Specific	Measurable	Achievable	Realistic	Timely

SMART
G O A L S

Specific	Measurable	Achievable	Realistic	Time-bound
Short Term: 10 days - 3 months				
EXAMPLE: Improve relationship with John and Rachel through 1to1 weekly coaching to understand together what steps to take to improving their performance and job satisfaction.	EXAMPLE: Agree on specific actions and goals with them and check the progress weekly.	EXAMPLE: Doable on a weekly basis.	EXAMPLE: Yes.	EXAMPLE: Review every seven days.
(Continue on next page)				

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Medium Term: 3/6 months

Example: (1) Increase my awareness of whether and which behaviours are in line with the features of quality jobs to change unproductive behaviours and enhance employees' performance and job satisfaction. (2) Put into practice the actions identified in the coaching wheel exercise to increase the use of my best coaching skills with the aim of enhancing employees' work engagement.

Example: (1) 360-degree feedback set in one and six months to check progress.

(2) Team meetings every month to check the progress.

Example: (1) Weekly yoga class to increase self-awareness.

(2) Two hours a month to check the progress and write a report for future actions.

Example: Yes.

Example: Within six months.

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Long Term

Example: Improve my team's and my own performance and well-being.

Example: Check performance improvements in 24 months.

Example: Enrol in management training to identify ways to increase the level of emotional support I can offer to workers.

Example: Yes.

Example: Within two years.

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✓ What makes a good job exercise (to complete before our next meeting)

➢ Please rate to what extent each of the features making a good job is applied in your team and, if you can, identify specific steps to close the gaps identified, and note any barriers encountered.

Feature	Applied from 1-10	Actions to close the gap (please be specific and set time limits).	Barriers to closing the gap
Reasonable work demands and working hours.			
Autonomy and control over daily work decisions.			

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Use of skills. (employees use a variety of skills at work).		
Positive relationships and effective communication with managers.		

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Access to development opportunities.		
Variety in tasks. (employees have different tasks to perform or change the type of tasks they perform on a regular basis).		

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| Support from managers (i.e., feedback, emotional support) and colleagues.		
Psychological empowerment (individuals feel competent and appreciated).		

Appendix 3. *(Study 1) Partial mediation model with ML estimator with 1000 bootstraps. Total and total indirect effects BCa CI.*

3a. *Significant total effects and total indirect effects of **the interventions** on subsequent outcomes.*
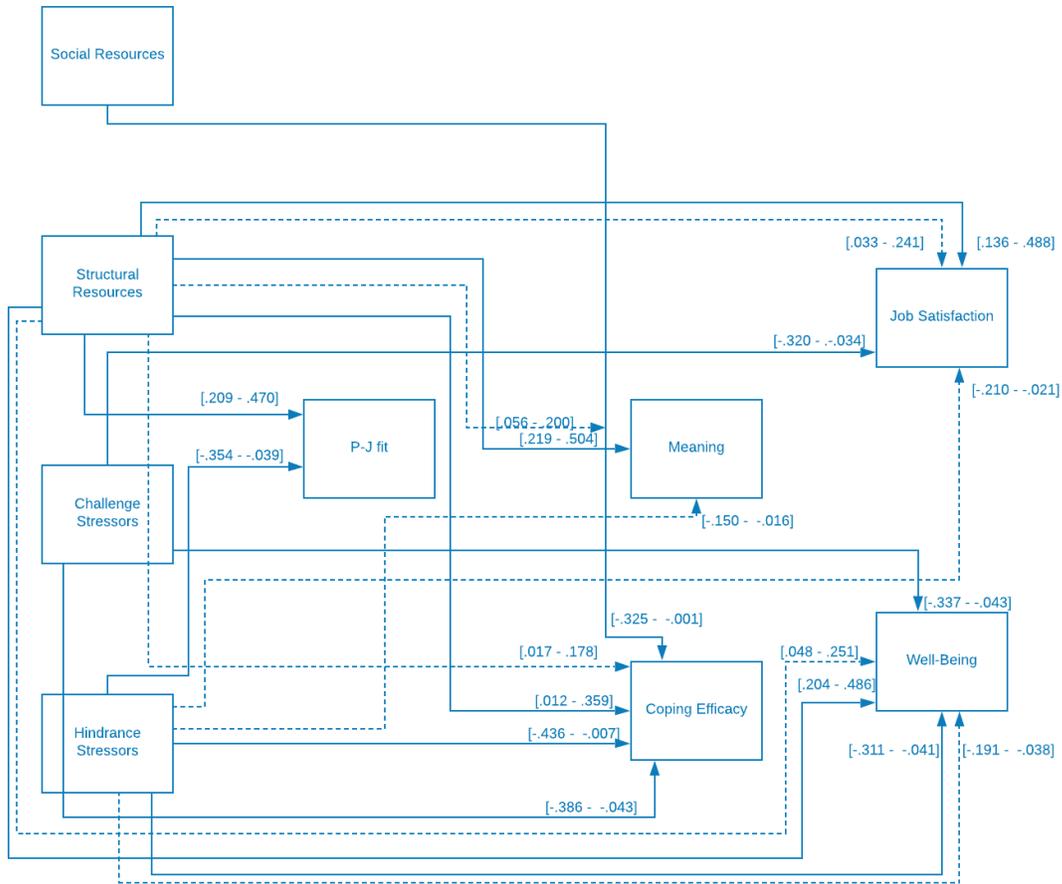

Note. Only the effects of two conditions are shown in this graph. See graphs 3b to3d for the effects of the other mediators. In brackets, standardised 95% BCa CI. Blue solid lines represent significant total effects. Blue dashed lines represent significant total indirect effects.

3b *Significant total effects and total indirect effects of the of **job crafting** on other outcomes.*
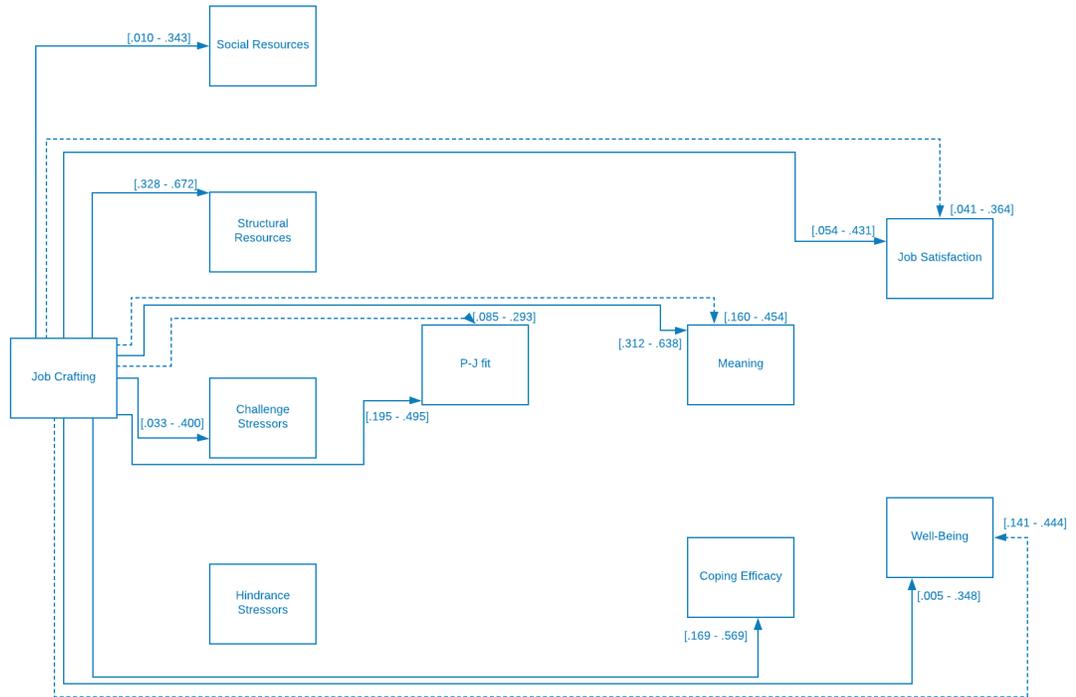

Note. Only the effects of job crafting are shown in this graph. See graphs 3c to3d for the effects of the other mediators. In brackets, standardised 95% BCa CI. Blue solid lines represent significant total effects. Blue dashed lines represent significant total indirect effects.

3c. *Significant total effects and total indirect effects of the of **the job characteristics** on the other outcomes.*

Note. Only the effects of the job characteristics are shown in this graph. See graph 3d for the effects of coping efficacy and meaning on the outcomes. In brackets, standardised 95% BCa CI. Blue solid lines represent significant total effects. Blue dashed lines represent significant total indirect effects.

3d. *Significant total effects and total indirect effects of the of* ***of p-j fit, meaning, and coping efficacy.***
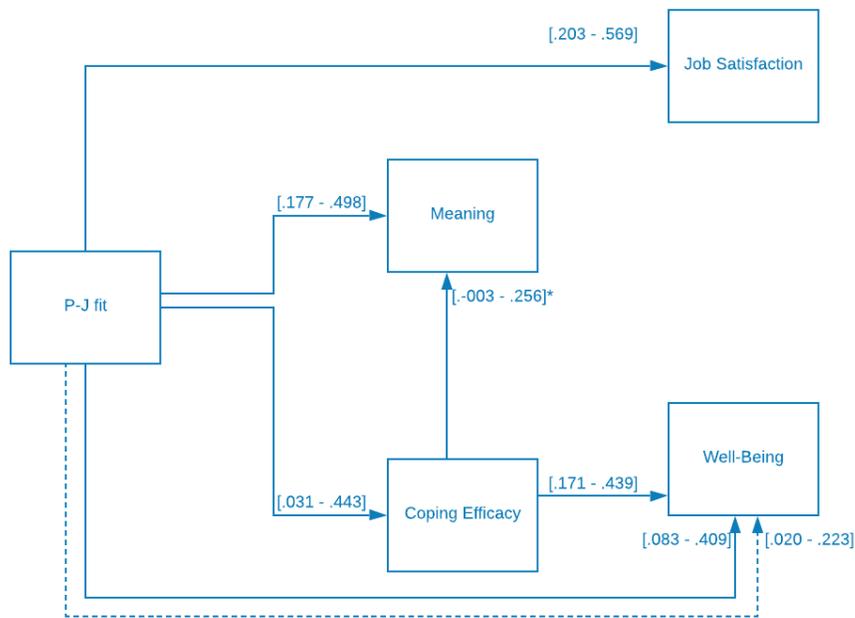
Note. In brackets, standardised 95% BCa CI. Blue solid lines represent significant total effects. Blue dashed lines represent significant total indirect effects. *p < .10.*

Appendix 4. *(Study 1) Coefficients and diagrams for the full mediation models.*

4a. *Full mediation model (main effects only) with MLR estimator correction. Significant Path coefficients.*
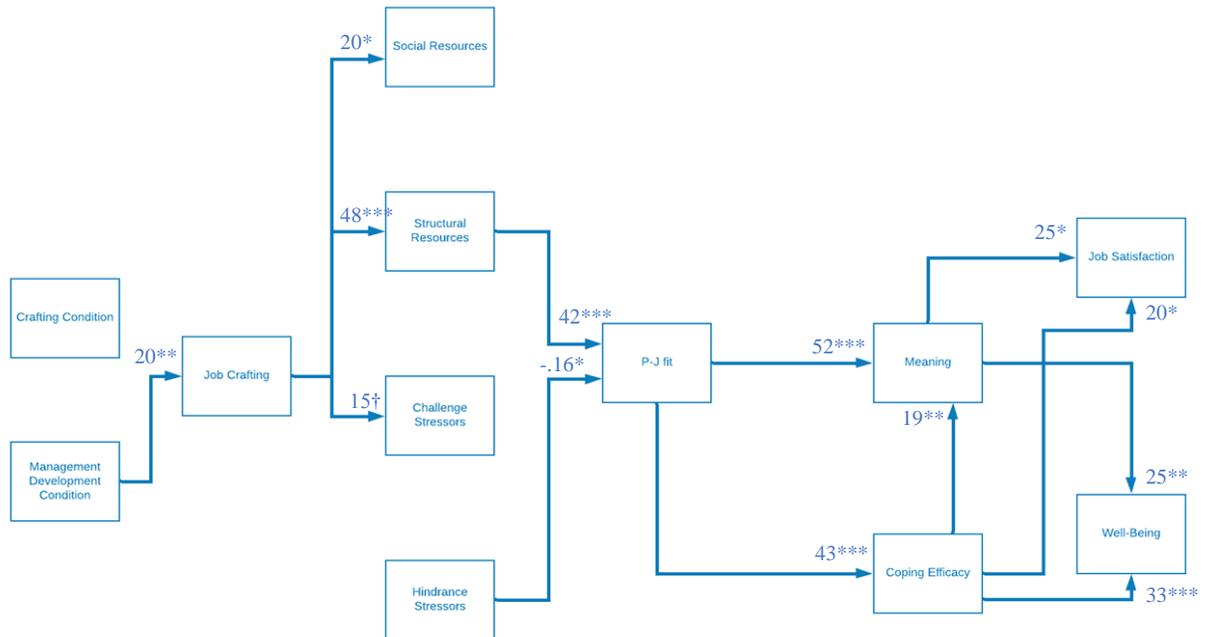
Note. Standardised path coefficients are shown. $†p < .1;$ $*p < .05;$ $**p < .01;$ $***p < .001.$

4b. *Full mediation model with MLR (main effects only). Standardised regression coefficients of the effects of predictor variables on well-being, job satisfaction and mediators (controlling for T1 variables).*

|	Job Crafting	Social Resources	Structural Resources	Hindrances	Challenges	P-J Fit	Coping	Meaning at Work	Well-Being	Job Sat.
Predictor	β	β	β	β	β	β	β	β	β	β
Bottom-up Int.	.05									
Top-Down Int.	.20**									
Job Crafting		.20*	.48***	.054	.15†					
Social Res.						.08				
Structural Res.						.42***				
Hindrances						-.16**				
Challenges						.06				
P-J Fit							.43***	.52***		
Coping								.19**	.33***	.20*
Meaning									.25**	.25*
R^2	42***	.33***	.43***	.35***	.27***	.62***	.37***	.66***	.67***	.47***

Note. $†\ p < .1; * p < .05; ** p < .01; *** p < .001.$

4c. *Full mediation model (main effects only) with ML estimator with 1000 bootstraps. Standardised Total Effects of Predictors on Mediators and Outcomes.*

| Variable	Job Crafting	Social Resources	Structural Resources	Hindrances	Challenges	P-J Fit	Coping	Meaning at Work	Well-Being	Job Sat.
	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
Bottom-up Int.	.05	.01	.02	.03	.00	.01	.05	.07	.00	.00
Top-Down Int.	.20**	.04†	.10**	.01	.03	.04*	.19*	.03*	.01*	.01†
Job Crafting		.20*	.48***	.05	.15†	.22***	.10**	.13**	.06*	.05*
Social Res.						.08	.04	.05	.02	.02
Structural Res.						.42***	.18**	.25***	.13**	.10**
Hindrances						-.16*	-.07†	-.10*	-.05†	-.04†
Challenges						.06	.03	.04	.02	.01
P-J Fit							.43***	.52***	.30***	.24**
Coping								.19**	.38***	.24*
Meaning									.25**	.25*

Note. † $p < .1$; * $p < .05$; ** $p < .01$; *** $p < .001$. Significance evaluated through bias corrected bootstrapped confidence intervals (shown in Graphs 4d to 4g).

4d. *Full mediation model (main effects only) with 1000 bootstraps and BCa CI. Significant total effects and total indirect effects of **the interventions** on subsequent outcomes.*
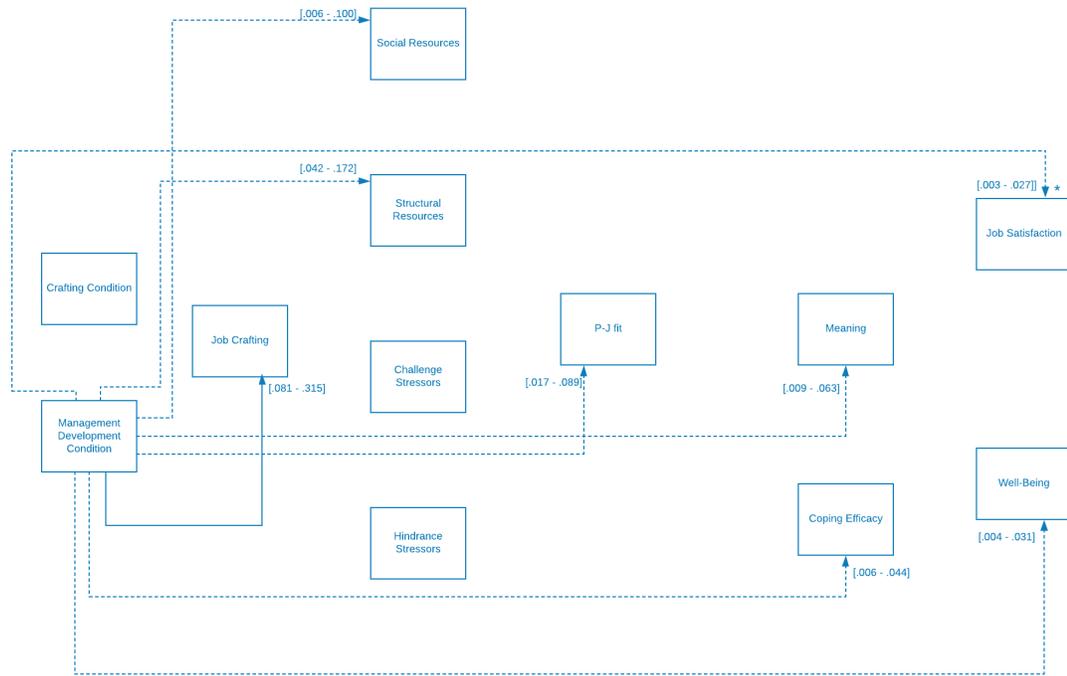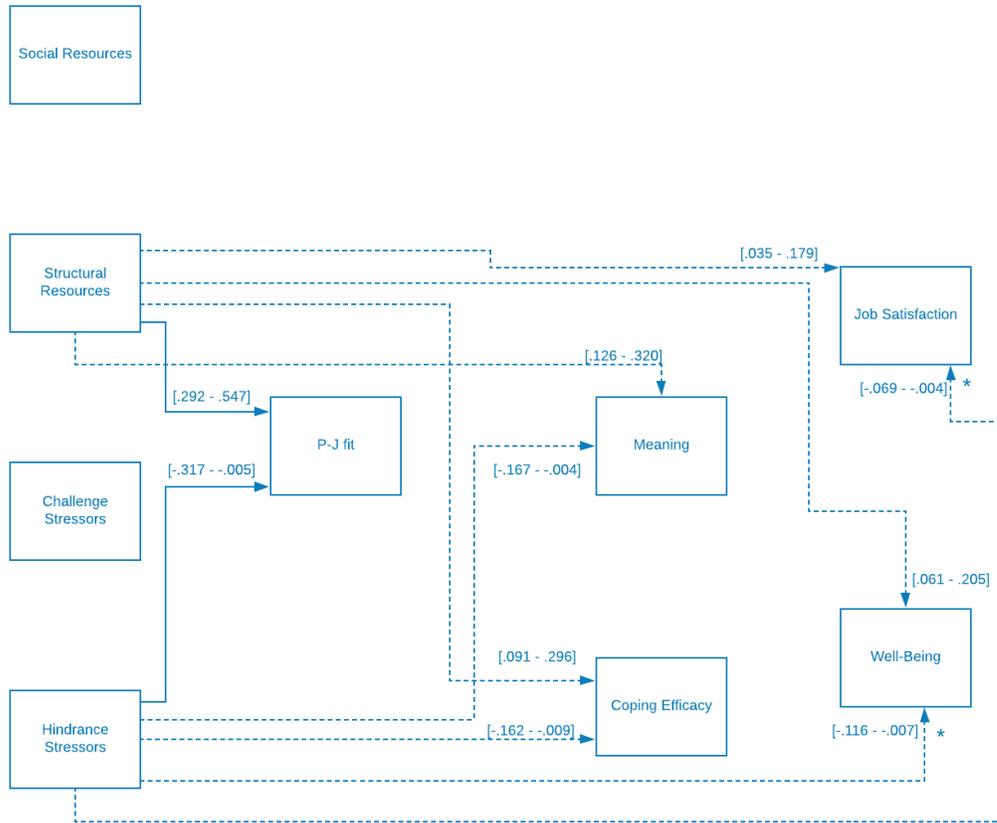

Note. Only the effects of the interventions are shown in this graph. See graphs 3e to 3g for the effects of the other mediators. In brackets, standardised 95% BCa CI. Blue solid lines represent significant direct effect. Blue dashed lines represent significant total indirect effects. *p < .10.*

4e. *Full mediation model (main effects only) with 1000 bootstraps and BCa CI. Significant total effects and total indirect effects of **job crafting** on other outcomes.*
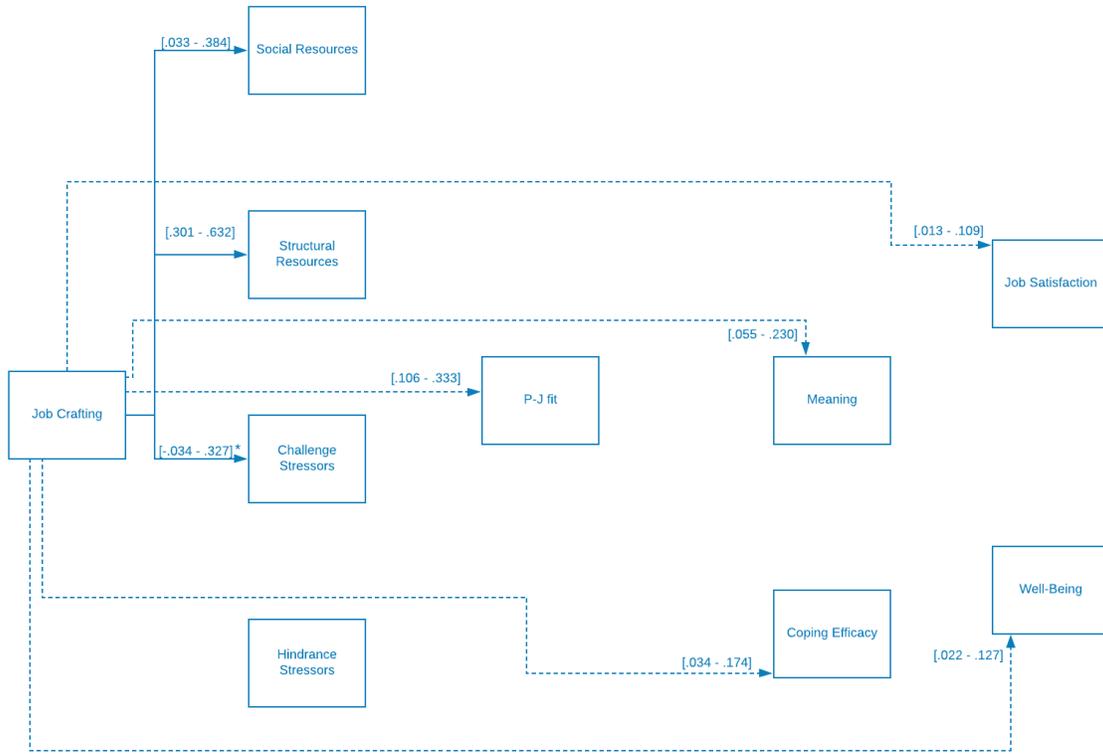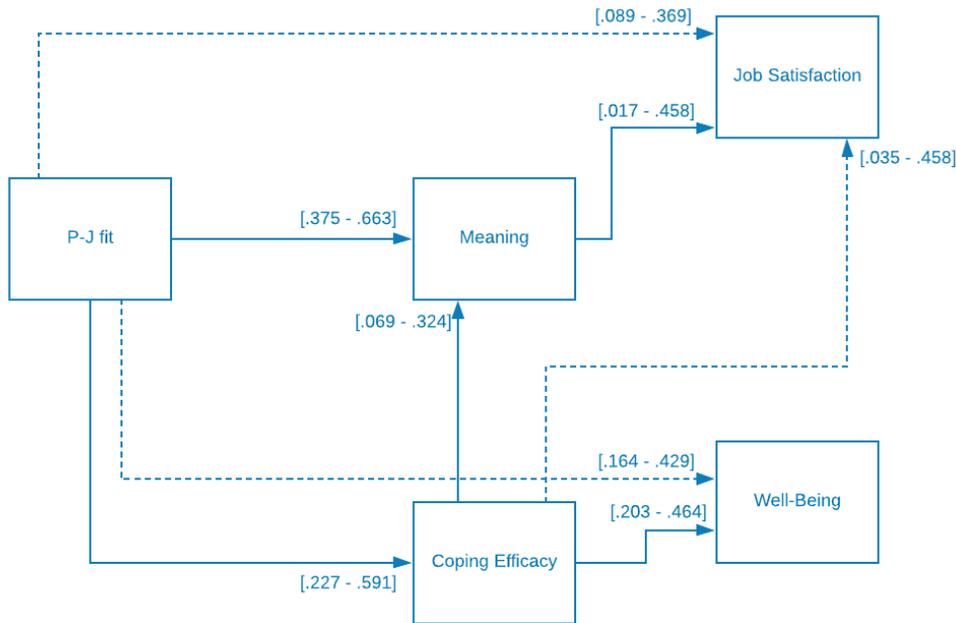

Note. Only the effects of job crafting are shown in this graph. See graphs below for the effects of the other mediators. In brackets, standardised 95% BCa CI. Blue solid lines represent significant direct effect. Blue dashed lines represent significant total indirect effects. *p < .10.*

4f. *Full mediation model (main effects only) with 1000 bootstraps and BCa CI. Significant total effects and total indirect effects **of the job characteristics** on other outcomes.*

Note. Only the effects of the job characteristics are shown in this graph. See graph below for the effects of the other mediators. In brackets, standardised 95% BCa CI. Blue solid lines represent significant direct effect. Blue dashed lines represent significant total indirect effects. * *p < .10.*

4.g. *Full mediation model (main effects only) with 1000 bootstraps and BCa CI. Significant total effects and total indirect effects **p-j fit, meaning, and coping efficacy.***

Note. In brackets, standardised 95% BCa CI. Blue solid lines represent significant direct effect. Blue dashed lines represent significant total indirect effects.